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ORIGINAL LECTURES.

TUMOR OF THE BACK; LOST DRAINAGE TUBES IN AN ABSCESS CAVITY; CHRONIC SYNOVITIS OF THE LEFT KNEE; FLOATING CARTILAGE OF RIGHT KNEE.

A Clinical Lecture Delivered at the Mercy Hospital, Chicago,

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(REPORTED BY WESLEY G. BAILEY.)

Tumor of Back.—We may have various tumors of the back, especially in this, the lumbar region. As appearances are often deceiving, I will not attempt to say what particular kind of growth this one is. It has a small inflamed base, and a whitish point at the extremity. Sometimes we have a tumor formed by a diseased sebaceous gland or several of them, and gradually growing larger and filling up with pus and sebaceous material, then bursting, and the abscess for a time, seemingly cured; however, these tumors may burrow into the loose connective tissue. This tumor is seen to have a small base, a little *punctum*, also is present.

If patients with this class of tumors would have their surgeon attend to the growth occasionally, they could be easily cured by distending the punctum, and pressing out the contents. The presence of sebaceous substance in the tumor, clearly defines its character. I will now make an incision, working a little slowly, to enucleate the sac. In some cases they readily separate from the surrounding tissues, and can be removed without much difficulty; but in this case, it is firmly adherent, and I am obliged to use the knife to dissect out the sac. We will preserve some of the blood for chemical examination, to add to our record of blood analyses, as a means of diagnosis, after Freund's method.

The interior of this variety of sacs usually presents a "whitish" appearance, indicating its cuticular origin. The sac in the case under consideration, however, does not present much of that "whitish" appearance, but looks as if it was an ulceration, presenting only a small remnant of cutis vera. These tumors, however long they exist, are not generally supposed to be dangerous to life, though they may cause septicæmia or pyæmia, but I never heard of anyone that lost their life on account of such a tumor. In cases of this nature I have known them to contain numerous hairs. The sebaceous matter in these sacs, resembles, very much, the vernix caseosa of the new-born. These cysts may occur on any part of the body, more especially where the corium is thick. This patient comes from Pecatonica, Ills., which place has interested some of you, as a locality of bones of the extinct mastadon, which once ranged in herds in northern Illinois. This is not a surgical topic, gentlemen, but as you are lovers of anatomical science, it may interest you to recall here, the fact that the gigantic femur of the animal found there, shaped so much like the same bone in man, presents on its huge globular head no trace of the attachment of a ligamentum teres; it proves that no such ligament existed during the life of the quadruped.

2. Lost Drainage Tubes in Old Abscess.—This patient has been here before; once, six years ago, when I excised the head of the humerus, and once last spring, with an abscess over the scapula. He now has a fistulous opening over the lower end of the *scapula.* The fistula presents that peculiar granular appearance which is pathognomonic of the existence of either dead bone, or some other inert substance that is foreign to the tissues. I cannot by probing detect anything of sufficient diagnostic importance through this small aperture, so we will anæsthetize the patient and enlarge the opening. This man has had caries of the head of the humerus and glenoid cavity, and a necrosis of the upper border of the scapula. In cases of inflammation of the distal or proximal ends of the long bones of the extremities, you will observe in your practice that those of the upper, recover more readily than those of the lower extremity, the cause being the severe friction and pressure on the synovial surfaces of the latter, which bear the entire weight of the body in walking. I will now open the abscess and examine its interior. I insert my finger and extract two rubber drainage tubes from the cavity. You now see why this abscess would not heal. Last spring the patient was here for two days, and went home with drainage tubes in the orifices of the abscess. It seems that his wife took charge of the dressing on his return home, and must have lost the tubes into the cavity and left them there. I will thoroughly search the cavity for any more drainage tubes, or other foreign articles.

There is a pendulous pocket present in the abscess, that I will connect with the larger cavity, further down. You will please bear in mind that those exuberant granulations so often present in certain

wounds and abscesses, generally indicate the presence of some foreign body in the tissues; it may be bits of clothing, bone, or wood, etc., etc.; however, a bullet seems to act differently, the salts of the metal to a certain extent preventing their formation: I have now dressed the wound antiseptically, and am certain no stray tubing is left in the cavity of the abscess.

3. Chronic Synovitis of Left Knee.—Here is a boy that is said to have a chronic inflammation of the knee-joint, due to an accident, which for a time, produced pain without much swelling. For some time the patient was able to go around with but little discomfort. He awoke one night and complained of pain in the part, was supposed to have hurt it against the bed, but was known to have received a kick on the knee some time after, making the inflammation much worse. His father, a blacksmith, has constructed a modification of Sayre's apparatus for making extension, that meets the indications in the case very nicely.

This apparatus instead of having the key at the side, (like Sayre's) for controlling the degree of extension, has a flat piece of steel, with buttons upon it, that fit into holes in a corresponding piece of steel above; and when these are in place, a small band of metal slides over the spliced joint of steel, and thus holds the mechanism firmly in place. At the upper, as well as the lower ends, these flat pieces of steel are strongly attached to bands of brass, that, form, when in place, complete circles around the boy's leg and thigh. These circles are made with a hinge at one part of their circumference, and at a point directly opposite, a slot has been cut in one end, that fits over a small staple on the other end, and when adjusted, a little loop of brass slides down over the joint thus formed, firmly securing it. Sayre puts strips of adhesive plaster all the way round the ends of the apparatus, to prevent any sliding motion of the appliance.

This case of chronic *synovitis* is a result of one or two acts of violence, and the irritation caused by the patient running around considerably upon it. He does not belong to a tuberculous family. The mechanical irritation of constant walking prevents the knee from making a spontaneous recovery, which it would accomplish in most cases, if not predisposed to tubercular infiltration. In rheumatic synovitis, we do not make use of extension, but in this case there is no rheumatism and extension is necessary. In this case they have used the ordinary diachylon plaster to hold the apparatus in place; do not use it in your practice for such purposes, for you will find that the common rubber plaster is much better. In walking, this patient should not allow the lame leg to support his weight, but should keep that foot off the ground entirely.

4. Inflammation of Ligaments and Subcutaneous Tissues of Internal Malleolus.—This little girl has an injury of her foot, caused by an accident, probably jumping out of bed. There is a large red swelling on the inner *malleolus*. It is not *synovitis*, for it does not hurt the child when I press the synovial surfaces together, and made slight movements under pressure. There may be a slight inflammation of the ligaments, for she resists a little when I put them on the stretch. Mainly, however, this is an inflammation of the skin and subcutaneous tissues. A good treatment is to apply to the part iodine and glycerine; one part of iodine and three or four parts of glycerine and water. I like better, however, some simple astringent lotion, *e. g.*:

℞	Zinci chloridi	gr. xxv.
	Acidi carbolici cryst	℥iss.
	Aquæ	f ℥viii.
	M.	

Let her take a few folds of linen or absorbent cotton saturated with the solution, and apply to the parts, and as soon as the moisture evaporates, apply more. There are a great many preparations that could be used to advantage in cases similar to the one before us. Solutions of the following substances are useful: Chloride of iron, sulphate of copper, nitrate of silver, tannic acid, sugar of lead, bichloride of mercury, alum, etc., etc. Several of these preparations are apt to become irritant as the solution concentrates by drying upon the skin; for instance, chloride of zinc, nitrate of silver, and bichloride of mercury—they may at last have even a caustic effect. Hence the skin should be washed with soap and water once in forty-eight hours, when such solutions are used. As this patient will not be under our control, it will be safe to use a solution of alum, which is not caustic in any strength.

The *cellulitis* in these cases has been said of late to arise from malaria, but whether it is so or not I cannot say.

5. Chronic Synovitis of Right Knee with Floating Cartilage.—Here is another patient with an inflamed knee, which is also the result of an accident. A horse kicked him there two years ago, though it did not hurt him much. It began to swell, however, almost immediately, and has remained in a swollen condition for the greater part of the time since. There is not much pain in walking or standing, but when the leg is flexed a little more than usual, he has considerable pain. It is a case of *synovitis*, gentlemen. Now, how do we know it is *synovitis?* Because, in the first place, there is a surplus of the synovial fluid in the cavity of the joint; secondly, the *patella* is slightly elevated; thirdly, it hurts him to bend the joint. Motion is limited on account of a thickening of the ligaments. It is essentially a nearly pure *synovitis*. The patient received another blow on the same knee, about a month ago, but this last injury was not sufficient to produce a swelling. A piece of cartilage was dislodged by the first contusion, and was thereby transformed into what is technically termed a "floating cartilage." These loose bodies are supposed to be formed by the breaking off of pedunculated growths of cartilage, which exist in many knee-joints. "Floating cartilages" are very apt to cause considerable trouble. When lying in some pocket or fold of the synovial membrane, they are harmless; but when, from some sudden twist or movement, they catch between the bones, they cause violent pain, and compel the patient to lie or sit down, until he can carefully dislodge the treacherous

lump from its painful position. Frequent repetition of the accident produces *synovitis*, and may even terminate in suppuration and *caries* of the joint. Hence, in bad cases, operative procedures are necessary to extract the cartilage. On inspection of this patient, you can distinguish a prominence, instead of the usual depression, each side of the *patella*. In case of the removal of a "floating cartilage" according to the old plan, without antiseptics, about one case in seven died. Careful antiseptic precautions must be taken in the operation of extracting a detached piece of cartilage. As this patient will remain in the hospital, we will have him go to bed, and will secure immobility by extension with a weight and pulley. Later in the case, an extension splint will be adapted to his leg, and a cure probably be attained. My practice is to use a straight tin or brass splint, concave, so that it will fit the limb nicely, and provide it with extension bands, as explained to you in a former lecture.

6.—Fracture of Forearm.—This boy has a fractured forearm; the injury occured five weeks ago, but we told him to return occasionally to have the arm dressed. The day I attempted to reduce the fracture, I experienced a considerable difficulty in approximating the ends of the broken *radius*; I was obliged to introduce a *ténotome* to sever the tissues that had become entangled with the ends of the bones, in order to have a better apposition of the fragments, which enables me in a great measure to overcome the difficulty. When the sharp ends of the fractured bone imbed themselves thoroughly in a muscle or other organ so as to have a stratum of firm tissue separating the fragments, no union will take place. I thus succeeded in obtaining a reduction of the fracture. There is some slight irregularity of both bones present in this case; but the occurrence most to be feared is the loss of rotary motion, consequent upon the action of the *pronator quadratus* in drawing the ends of the fragments toward the centre of the forearm, so that they strike, instead of rolling freely past each other in rotation. In the present instance the rotation is good. We will, however, apply the splints for another week, as the parts are weak and need protection in case of accidental falls. Absolute perfection in all respects is rarely obtained after fracture of the forearm; but by diligent attention you will obtain good and useful members in the great majority of cases.

PNEUMONIC ABSCESS.[1]

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The daring boldness and, in some instances, the brilliant success, with which destructive processes within the lungs have been recently attacked by the surgeon lend, together with the inherent importance of the subject itself, an absorbing interest to my theme. The advances made by these pioneers upon a hitherto untrodden field justly challenge the admiration of the professional world, and I fear that only adverse criticism awaits any one who attempts to run counter to the now popular current in the management of pulmonary abscesses. Yet the principal object of this communication is to call attention to the well-known, but often illy appreciated fact that, not only a few, but many of these cases recover without an operation, and that, a diagnosis having been made, it does not always follow as a corollary that an external evacuation of the purulent collection is the sole, or, except in rare cases, the most appropriate remedy.

I desire, however, that my position be not misunderstood. That operative measures are necessary and advisable in some infrequent and properly selected cases I am not only free to admit, but also to advocate. Indeed, I have myself assayed the operation in one case, and proposed it in another—both of which recovered by the powers of Nature and are living and well to-day. I have incorporated in this paper the histories of quite a number of cases which have recovered under expectant and medicinal treatment, and I think that the observation of every one present will bear me out in the belief that I do not stand isolated in my experience in this particular. On account of the vastness of the entire subject of pulmonary abscesses I will confine my remarks to those occurring as a consequence of pneumonic fever.

That the issue of pneumonic inflammation in abscess is a rare event is affirmed by the vast majority of writers,[1] although I quite agree with those who consider its rarity as having been generally overrated.[2] On the contrary it certainly is not so common as the older authors[3] believed, for it is clear that they must, in many instances, have mistaken tubercular vomicæ and post-mortem breaking down of tissue, for pneumonic abscesses.

Laennec,[4] with his vast experience, extending over a period of twenty years, and after having made several hundred dissections of pneumonic subjects, met with abscess only five or six times. Andral,[5] with an equal experience, met with but one case in an adult and two cases in infants. Bronsais,[6] with extensive facilities for observation, observed but a single case, and that was caused by a foreign body. Chomel,[7] in seventeen years' pathological work, saw but two cases. Trousseau,[8] in a quarter of a century's practice, had never encountered a case, although he then met with two within a week. Bouillaud[9] met with only two or three cases. Swett[10] says that he never encountered an example, although in another place[11] he gives the details of a

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[1]Read before the Chicago Medical Society, Dec. 7, 1885.

[1]Laennec, Diseases of the Chest, trans. by Forbes, N. Y., 1830, p. 205; Andral, Med. Clin., trans. by Spillan, Phila,, 1843, Vol. II, p. 180; Chomel, Vorlesungen über Pneumonie, Leipzig, 1841, p. 58; Eberle, Prac. Med., Phila,, 1831, Vol. I, p. 286; Rokitansky, Path. Anat., Phila., 1855, Vol. IV, p. 70; Watson, Prac. Physic., Phila., 1845, p. 573; Williams, Cyclop. Prac. Med., Vol. III; Gerhard, Dis. Chest, Phila,, 1860, p. 188; Swett, Dis. Chest, N. Y., 1856, p. 69; Spillan, Op. cit., p. 180; Dietl, Der Aderlass in der Lungeuentzundung, Wien, 1848, p. 69; Ziemssen, Pleuritis u. Pneumonie in Kindesalter, Berlin, 1862, S. 163; Sturges, Nat. Hist. Pneumonia, London, 1876, p. 117; Jürgensen, Ziemssen's Handbuch der Spec. Path., Bd. V, Leipzig, 1877, S. 146; Green, Quain's Dic. Med., N. Y., 1883, p. 859; et. al.

[2]Cullen, Prac. Phys., Phila., 1792, Vol. I, p. 187; Heimly, quoted by Laennec, Op. cit., p. 207; Crichton, quoted by Laennec, Op. cit., p. 207; Stokes, Diseases of the Chest, Dublin; Copland, Med, Dic., N. Y., 1855; Vol. II, p. 882.

[3]Aretaeus, Galen, Tulpius, Bontius, Morgagni.

[4]Op. cit., p. 205.

[5]Op. cit., p. 180.

[6]Hist. des Phlegmas. Chron., T. II, p. 111.

[7]Dic. de Méd., T. XVIII, p. 239.

[8]Clin. Med., Phila., 1873, Vol. I, p. 650.

[9]Dic. de Méd., T. XIII, p. 364.

[10]Op. cit., p. 69.

[11]Op. cit., p. 93.

case. Elliottson[1] saw only two cases, and Gendrin,[2] Honore[3] and Romkaud[4] met with one each. Of 319 fatal cases occurring in Washington in 1878, abscess was found but once.[5] Sturges[6] denies that abscess is ever a consequence of the pneumonic process! On the other hand Baillie,[7] who probably correctly reflected the opinions of British physicians of his day, considered abscess of the lung as of frequent occurrence, and this view was shared by Crichton,[8] Cullen,[9] Heimly,[10] and others. Stokes[11] and Copland[12] content themselves with the conservative statement that it is a comparatively uncommon event, but that they believe its rarity to have been overestimated. Mercier[13] observed abscess four times in seventy cases of senile pneumonic fever; Flint[14] met with it four times in 133 cases of adults, and Delafield[15] twice in 123 fatal cases of all ages. I have myself met with abscess nine times in 413 cases of pneumonic fever. This does not include cases of gangrene, with abscess, nor those in which a foreign body was the cause unless pneumonia was actually present. Excluding the cases in which a foreign body was the prime cause and the number is reduced to seven.

If every case of pneumonic fever accompanied by purulent expectoration were considered as one of pulmonary abscess, we would find plenty of them. If, however, to complete or confirm the diagnosis it be required to demonstrate the existence of a cavity by means of unequivocal signs and symptoms, in the case of the living, or by an autopsy in the case of the dead, they will be encountered much less frequently. But even the evidence of the dead-house must be accepted with caution, because an inflamed lung in the stage of gray hepatization is often exceedingly friable and will readily break down under very slight pressure, drawing or jarring. Such a lung, after being roughly handled, may exhibit, at points, the strongest suspicions of abscess without any being actually present.

Laennec[16] long ago called attention to this fact in the following words: "When we forcibly drag from the cavity of the chest an inflamed lung attached to the costal pleura by old cellular adhesions, it frequently happens that the parts most infiltrated with pus give way under the fingers, or, without suffering any external wound, yield internally under the pressure so as to form a soft sanious mass, which an inattentive observer might mistake for a collection of pus."

Two general classes of abscesses may be mentioned: the encysted and the non-encysted. It is probable that all pulmonary abscesses would be bounded or lined by a limiting membrane were time enough allowed for its formation.[17] This membranous wall bears the same relation to the abscess that a granulation surface does to an ulcer. It prevents absorption of noxious materials, continues for a time to secrete pus, and finally contracts and closes the cavity. In non-encysted abscesses the line of demarcation between the purulent matter and the intact tissue may be sharp and well defined or the contrary —usually the latter—and after evacuation the walls may be smooth and regular or uneven, ragged and shreddy.

[1]Prac. Med., Phila., 1844, p. 754.
[2]Ranking's Abst., No. 8, 1849, p. 48.
[3]Quoted by Andral, Op. cit., p. 180.
[4]Ranking's Abstract, No. 8, 1849, p. 48.
[5]Report Board of Health, D. C., 1878, p. 115.
[6]Op. cit., p. 117.
[7]Morb. Anat., p. 70
[8]Quoted by Laennec, Op. cit., p. 207.
[9]Op. cit., p. 187.
[10]Quoted by Laennec, Op. cit., p. 207.
[11]Quoted by Copland, Op. cit., p. 882.
[12]Op. cit., p. 882.
[13]Bull. de la Soc. Anat., T. XII, p. 279.
[14]Prac. Med., Phila., 1868, p. 179.
[15]New York Med. Jour., July, 1865, p. 68.
[16]Op. cit., p. 205,
[17]Solon, Arch. Gen. de Méd., 1st. S., T. XXVI.

Pneumonic abscesses vary in size from the most insignificant dimensions to those occupying the entire lung.

Chomel[1] saw an abscess which was six inches long, four inches wide and three inches thick. Stokes[2] records a case of very extensive abscess. Malloy's[3] patient spat out, at one time, over half a pint of pus. Sedgwick[4] removed with a trocar more than a quart of pus at one, and three pints at another time from the same patient[5] In one case an abscess as large as the fist was found in the right lung,[6] and in another more than half the lower lobe of the right lung was an abscess cavity, with a second abscess at the base of the left lung.[7] Fowler[8] reports a case in which the abscess occupied three-fourths of the right lung—the whole of the middle and lower lobes being hollowed out—and which contained three pints of pus. Hourmann and Dechambre[9] observed a case in which the abscess occupied the greater part of an entire lung. In a patient who died in the Charleston City Hospital the entire left lung was disintegrated, presenting a honeycombed appearance, and filled with pus.[10] In another patient who died in the Marine Hospital, on Bedloe's Island, the entire right lung was found to have totally "disappeared and was replaced by a cavity filled with gray purulent fluid."[11] Radek[12] evacuated, by incision, a quart of pus from the right lung. Sutton's[13] case of operated abscess involved the entire lower lobe of the left lung.[14]

According to most writers[15] abscess of the lung is oftenest met within the upper lobes, but, judging from the published cases of others and my individual experiences, I am convinced that this is an erroneous opinion, and that the lower and middle lobes—those in which pneumonic consolidation oftenest occurs—are most frequently affected. They are usually single but may be numerous, and many cases are on record in which abscesses have been found in both lungs.[16]

Abscess of the lung is the result of excessive cell production in the parenchymatous tissue, leading to innutrition, softening and destruction of the supporting and form giving structures of the lung.[17] Even since Cohnheim[18] demonstrated the escape of the white blood corpuscles through the unbroken walls of the capillaries, pathologists have very generally acknowledged that the formation of pus is a compound process, consisting in an escape of blood plasma and leucocytes from the blood vessels, an abundant proliferation of the cellular elements in the surrounding tissues, and finally the breaking down and liquefaction of all these structures. In the lung minute foci of softening occur, and the full size of the abscess is attained by the breaking down of the barriers between these and their coalescence.

In many cases of pneumonic fever there comes a time when the supporting structures of the affected portion of lung have become greatly softened and weakened by this cellular proliferation, deposition of fluids and leucocytes and lack of proper nutrition.

[1]Vorlesungen u. Pneumonie, p. 37.
[2]Dublin Jour. Med. and Chem. Sci., Mar. 1883.
[3]Lancet, N. Y. Ed., 1852, Vol. I. p. 291.
[4]Ibid., 1862, Vol. II, p. 173.
[5]This I believe to have been the first case submitted to operation.
[6]U. S. Marine Hospt. Repts., 1883, p. 243.
[7]Ibid., 1883, p. 245.
[8]Lancet, N. Y. Ed., 1852, Vol. I, p. 294.
[9]Arch. Gen. de Méd., T. XII, 1836.
[10]U. S. Marine Hospt. Repts., 1884, p. 191.
[11]Ibid., 1881, p. 145.
[12]Centralb. f. Chirurg., 1878, No. 44, p. 750.
[13]Chicago Med. Rev., Mar. 5, 1881, p. 112.
[14]No attempt has been made to make this list complete.
[15]Jürgensen, Op. cit., p. 146; Green, Op. cit., p. 859; et al.
[16]Lombard, Gaz. Méd. 1835, p. 679; Chomel, Op. cit., p. 47; U. S Marine Hospt. Repts., 1883, p. 245.
[17]Rindfleisch, Path. Histol., Phila., 1872, p. 431.
[18]Virchow's Arch , Bd. XL, S. 27.

No great flight of the imagination is required to conceive that under such circumstances the integrity of the parts hangs upon a very brittle thread. Abscess is imminent and may be brought about by even trivial causes. For many years I have kept this contingency steadily in view in the management of my pneumonic patients as they approach the period of crisis, and for some time thereafter. I attempt to keep the parts as quiet as possible, easing the powerful and convulsive cough, forbidding all rapid and forcible movements of the patient, and even practicing percussion with lightness and care.

Of course, there are other and more efficient agencies besides local injury which are instrumental in the production of an abscess. I am well aware that in those cases in which death of the tissues has occurred, no amount of care can prevent their destruction, and that in those cases at the other end of the pathological scale, in which the circulation remains good and the connective tissue is not imperiled, no amount of neglect or rough handling can cause an abscess to form. It is not to either of these classes to which my remarks are applicable, but to that middle and larger class, in which the chances for or against local destruction are more evenly balanced. You may inquire, and with reason, why it is that I can produce such a large array of abscesses if care in this particular is an important point, and if I exercise it in my practice as I have stated. I will reply to this by saying that all of my cases, save two, came to me second-hand. Of 297 cases of pneumonic fever, treated solely by myself, only two eventuated in the formation of an abscess.

Pneumonic abscess has been described as a slow process, requiring a long time for its completion,[1] but it only requires a cursory examination of the published cases to be convinced that this is an erroneous proposition. Personally, I do not believe that the pneumonic process is ever at a stand-still; there is a constant change, and when the acme is reached repair or destruction begin at once and usually pursue a rapid course. Unless the whole of the inflamed portion contribute to form the abscess, the parts not destroyed and not in immediate proximity to the walls of the cavity usually clear up and regain their functions in the ordinary length of time. Bolles[2], however, records a case in which there was no perceptible improvement in the general or local conditions until after the evacuation of the abscess on the forty-first day.

Pus here, as elsewhere, may be absorbed and the abscess disappear, but this can only occur in minute collections. The absorbents may, however, take up the serum, and leave the cellular elements behind as caseous mass. This residuum may remain a long time dormant, but it is always an element of danger and may at any time imbibe moisture, soften, liquefy again and pursue an ordinary course. One of my cases was of this kind.

Case I.—Mrs. I., aged 25 years. Two and one half years ago she had an attack of pneumonic fever, affecting, locally, the base of the left lung. From this she never entirely recovered; cough, fever, night-sweats, emaciation and prostration continuing for many months. Gradually these symptoms subsided and she regained a portion of her former weight and strength. The cough left her entirely and she considered herself well, although she continued pale, easily fatigued and short of breath on the slightest exertion. Last August her cough returned, with fever and pain in the left side. For a week there was only a scanty mucus expectoration, but on the seventh day she brought up, in a few moments, nearly half a pint of thick, creamy pus. At first the discharge was quite free, amounting to three or four ounces in the twenty-four hours, but the quantity rapidly diminished to one or two drachms upon rising in the morning. The discharge was much more easily effected when she lay upon the right side. Previous to the discharge of the abscess there was dulness on percussion and absence of the respiratory sounds at the base of the left lung. The heart was not displaced and there was no bulging of the intercostal spaces. After the abscess burst there was tympanitis and loud gurgling. Improvement rapidly followed and she is now almost well. She coughs and expectorates a muco-purulent matter occasionally, but sometimes goes a week without doing so. There is yet slight dulness and a weakness and tubularity of the breathing in the affected area, with moist râles upon forced inspiration. The left side is three-fourths of an inch less in measure than the right. A curious point in this case is the fact that the left breast ceased secreting milk—the patient was nursing a ten-months' child—whilst the right was unaffected.

By far the most common, and I am sure the most desirable, termination of a pneumonic abscess is by an evacuation of its contents through the bronchi. In a certain proportion of large abscesses, the opening is into one or more of the neighboring cavities or through the the thoracic walls.

Solon[1] reports a case in which the discharge occurred into both the pleural and pericardial cavities, and Pel[2] gives a case which proves that the pus may sink down in front of the heart in such a way as to simulate a purulent pericarditis, an illusion which may not be dispelled by an operation. In a case in which a large abscess occupied the right lung, the pus, after penetrating through the layers of the pleuræ and diaphragm, gravitated downward in front of the colon and formed a small cavity to the front of the cæcum[3]. In yet another case, in which the right lung was also the seat of the abscess, the pus had made its way into the sheath of the psoas muscle and finally appeared as a fluctuating, non-inflammatory swelling in the groin[4].

Subsequent to the discharge of the abscess it may pursue one of several courses. It may remain unaltered until the death of the patient. It may become lined with false membrane and surrounded by a hard cellulo-fibrous wall and remain permanently. Or, finally, it may contract and become obliterated[5]. When an abscess has existed for a long time, it approaches as nearly as possible the circular form, and its walls are lined with a smooth secreting membrane[6]. When the abscess is of the largest size, its perfect obliteration is, perhaps, impossible, but when of more moderate dimensions this may occur[7], although with difficulty. After its closure, the former site in the lung is marked by a puckered cicatrix. If it has been a large one, the walls of the chest are depressed over its former seat, and if situated near the surface and with pleuritic adhesions, there may be a decided depression of the external soft parts[8].

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[1] Tyndale, St. Louis Med. and Surg. Jour., Apr. 1878, p. 225.
[2] Boston Med. and Surg. Jour., Feb. 3, 1881, p. 106.

[1] Op. cit.
[2] Berliner Klin. Wochenschr., 1884, No. 8, p. 113.
[3] U. S. Marine Hospt. Repts., 1882, p. 229.
[4] Ibid., 1883, p. 243.
[5] See a remarkable case by Stokes, Dis. Chest., p. 314.
[6] Rokitansky, Op. Cit., p. 71.
[7] Copland, Op. cit., p. 882; Gerhard, Op. cit., p. 188; Rokitansky, Op. cit., p. 71.
[8] Rokitansky, op. cit., p. 71.

CASE II.—Mr. J. B., aged 57 years, was attacked at Christmas, 1876, with pneumonic fever, with consolidation of the entire left lung. Crisis occurred on the eighth day, and a few days later he began sitting up, yet his cough, instead of diminishing, became more severe, convulsive and racking. After a few days fever returned, with profuse perspiration, jaundice, anorexia and vomiting. Expectoration had been scanty and muco-purulent until January 12, when it became copious and almost wholly purulent. The symptoms improved somewhat after this, but after a couple of days the expectoration suddenly ceased, and he became worse than before. I saw him for the first time at this juncture. The pulse was rapid, temperature elevated, skin bathed in perspiration, breathing embarrassed and expression anxious. Under the left clavicle, over a space as large as the palm of the hand, there was dulness on percussion, tubular breathing and moist râles around the circumference, and absence of expiratory sounds in the central parts. Two days later, with free purulent expectoration there was heard, on deep inspiration, gurgling at the spot where respiration was before absent. When the patient lay upon his back tympanitis was well marked, but was somewhat obscure when he assumed an upright posture. The abscess discharged for various periods at irregular intervals, with frequent suppressions. When the discharge was free his condition was much ameliorated, but when it became scanty or suppressed hectic symptoms at once supervened. The discharge became more and more regular, and the patient improved so much that he was able to leave his bed by the first of March, and was quite well in four months more. A month ago I examined this gentleman, and now, nearly ten years after his illness, auscultation and percussion afford no evidence of any impairment of function. Between the first and second and between the second and third ribs, in front, however, the soft parts are considerably depressed and contrast markedly with the condition on the right side.

Abscess is likely to follow the pneumonic process in all sorts of patients—the weak and the strong, the old and the young—none escape, and none are peculiarly predisposed.

Friedleben[1] considers infants more prone to abscess than adults. Billard[2] met with this condition in a child only twenty days old, and Depaul[3] has published a case in which the abscesses formed during intra-uterine life. Mercier[4] and Hourmann *et* Dechambre[5] have detailed cases in octogenarians, and one of my patients, only recently recovered, is 74 years of age.

CASE III.—Mr. B. H., a retired farmer, aged 74 years, was attacked about the first of February, 1885, with pneumonic fever, with hepatization of the base of the left lung. In ten days he was thought to be convalescent, yet he did not improve. His cough continued and became more severe and convulsive. He lost weight and strength from day to day. I first saw him on March 16. He had continuous fever, with evening exacerbations; very profuse and effusive perspirations; a severe, paroxysmal and distressing cough, which was often accompanied by vomiting; expectoration of frothy mucus; pain of a heavy, expansive and dull character in the left side; dyspnœa on exertion, etc., etc. There was dulness over the lower lobe of the left lung, with bronchial breathing and moist râles along the upper border of this area, and absence of all respiratory sounds at the extreme base. There were no changes in the external soft parts, and the heart was not displaced. He had diarrhœa, his urine was scanty and deposited a copious sediment of urates, and his feet and legs were œdematous. A puncture with the hypodermic needle in the eighth interspace in the axillary line revealed the presence of pus at a depth of an inch-and-a-quarter. An operation was proposed, but was declined by the patient. The puncture with the needle gave rise to a severe paroxysm of coughing, ending by bringing up a small quantity of pus which was slightly streaked with blood. The patient and attendants united in declaring that no such sputa had been previously seen. The expectoration now became purulent, and increased so much that on the following day he brought up about four ounces of creamy pus, which was interspersed with small and dark sanguinolent masses, and had a fetid smell. Evidences of a large cavity were now abundant and conclusive. After a week rapid improvement took place. The fever declined, the exhausting perspiration ceased, appetite and digestion improved, the diarrhœa was checked, the urine became free and clear, the œdema disappeared, and he gained in strength and spirits. The purulent expectoration, which was occasionally fetid, continued, in diminishing quantity, for two months, when it ceased to appear regularly. I saw this gentleman on October 30. There is still dulness at the extreme left base, with loud, harsh and cavernous sounds on deep breathing and almost entire absence of all sounds with ordinary respiration. A deep, forcible inspiration brings on a peculiar convulsive cough and the expectoration, with much effort and gagging, of a small quantity of muco-purulent matter. He is now the very picture of robust health in old age, considers himself perfectly well, and weighs 190 pounds, which is more than he has done in thirty years.

The symptoms of pneumonic abscess vary much in different cases. In many the acute symptoms of the initial fever decline and the patient appears to be on the highway to recovery, when, at a variable time afterwards, the remaining symptoms are aggravated and new ones appear upon the scene. The cough, which had not ceased, increases in severity and becomes more frequent and paroxysmal. The fever, which may have nearly or altogether disappeared, is again a prominent feature, especially in the evening. Profuse perspirations follow the febrile exacerbations. The spirits decline, the expression is anxious, the strength fails, the patient again takes to his bed, and altogether he comes to a most alarming state. It must be admitted, however, that in some cases the symptoms do not point very clearly toward pulmonary suppuration, and in others the abscess remains entirely latent, and is not suspected until its discharge or an autopsy discloses its presence. The formation of pus in the lungs is not often accompanied by signs, as in other situations,[1] yet most of these patients will be found very susceptible to the influence of cold, and complain of feeling chilly with the least draught of air, or even when well protected from cold. This was true of one of my patients.

CASE IV.—B. S., a farmer, aged 34 years, was taken, October 30, 1876, with pneumonic fever, locally affecting the lower two-thirds of the right lung. The malady ran an ordinary course, and by the tenth day there was no fever and but little cough. Shortly after this the cough increased in severity, and fever with profuse perspirations came on. The knees were always cold and they could not be warmed. His appetite, which had become pretty good, failed, he was restless and sleepless, was delirious at times, and became greatly prostrated. Auscultation and percussion revealed nothing decisive, although it is noted that at the level of the nipple, in the axillary line, the respiratory sounds were almost absent, and at this point forcible percussion was ill borne. The temperature ranged between 99° and 101°, and the pulse at about 100. On the thirty-first day of his illness the abscess evacuated itself through the bronchi. No reliable information could be obtained of the quantity of pus expectorated on the first day, but on the second it was about two ounces. The quantity gradually lessened, and ceased within a month. After the evacuation of the abscess there was obtained abundant evidence of a cavity. The patient recovered entirely in about two months, but died two years later from acute pulmonary congestion, brought on by excessive exposure to intense cold. At the autopsy the lungs were found intensely congested—almost black—and the bronchi full of watery fluid. In the middle lobe of the right lung, near its upper and outer border, there was a fibrous nodule of the size of a cherry, from which radiated fibrous bands in different directions.

Previous to the opening of the abscess, the cough, as before stated, is very severe and convulsive,

[1]Arch. f. Phys. Heilk., 1847, S. 66.
[2]Mal. des Enfans.
[3]Bull. de la Soc. Anat., T. XII, p. 273.
[4]Op. cit.
[5]Op. cit.

[1]Sturges, Op. cit., p. 60.

resembling the paroxysms of whooping-cough[1]. Afterwards the character of the cough is altered, by attaining a quality peculiar to itself, which may be vaguely described as having a high pitch and a metallic quality and conveying the idea that, although the sound originates in the lungs and the larynx, yet it is greatly reinforced by reverberations in the naso-pharyngeal cavities. This applies particularly to basic cavities with but scanty expectoration. If the cavity is located in the apex, or if the discharge is very free and easily affected, these qualities are not so marked. If the cavity is large and empty and communicates with a large bronchus, the cough is cavernous in character. My impression is that not many of these abscesses open into large bronchi, for the reason that they are usually peripheral, rather than central.[2]

The expectoration has a peculiar turnipy flavor,[3] and at first is usually fœtid, but after standing awhile it sometimes acquires a rather pleasant odor, resembling that of cowslips.[4] The odor may be gangrenous from cavernous decomposition, without there being any sphacelus as was demonstrated by autopsical examination in Pereira's[5] case. The breath may be perfectly sweet, or constantly or only occasionally offensive.[6] It is, to my senses, in many cases, peculiarly sweetish and sickening. If the pus becomes decomposed in the abscess cavity and the respired air has free access thereto, it will certainly be fœtid, otherwise not.

When the discharge of pus occurs through the bronchi, it is likely to come on suddenly and is more or less profuse according to the size of the abscess, the resilliency of its walls and the size and potency of the opening. The matter is of a creamy consistence, a yellowish or greenish color, and may be mixed with small quantities of blood and elastic tissue. The discharge is often suppressed for a longer or shorter time when, suddenly, especially after changing the position of the body, a more or less copious expectoration of almost pure pus takes place. The amount expectorated in twenty-four hours varies from a very small quantity to more than a pint. I am satisfied that the very powerful cough, often accompanied by vomiting, met with previous to the evacuation of a pulmonary abscess, is an efficient agent for the rupturing of the walls of the cavity and the discharge of its contents. This was exemplified in one of my cases.

CASE V.—N. J., female, aged two years. About the first of February, 1884, whilst eating peanuts, she choked, coughed severely and spasmodically for several minutes, lay down to sleep and awoke in an hour with fever and a painful cough. After a few days she improved, but soon relapsed again. Exacerbations, followed by temporary improvement, continued for more than two months, when she came under my care. At this time the cough was not frequent, but it was very severe and convulsive, and almost always ended in emesis. It very much resembled whooping-cough, for which it had been mistaken. She had irregular febrile exacerbations, which were followed by profuse perspiration and was much emaciated. There was dulness, not flatness, over the entire left side of the chest as high as the second rib, and in this area the respiratory sounds were everywhere tubular, but weak, except above and external to the nipple, in the axilla, and under the scapula, where they were entirely absent. The heart was not displaced and there was no intercostal bulging. I was informed that a few days previously, the skin above and to the left of the nipple had been reddened, swollen and painful, but this had disappeared. I had not been informed of the origin of the illness, and abscess being diagnosticated, I determined to operate. On April 11th, the child was put under the influence of chloroform by Dr. Costello, and a long hypodermic needle was thrust into the lung, just external to the angle of the scapula and pus found at a depth of an inch and a quarter. Making an incision down to the pleura, it was found by Fenger's[1] test that adhesions had not formed. In the axilla, the abscess was found somewhat nearer the surface, but here adhesions were also absent. For some reason pus was not obtained anteriorly. I now made a number of punctures about the seat of my first incision, hoping that adhesions would follow, and postponed the completion of the operation. Absolutely no ill effects followed. I was now, for the first time, informed of the peanut incident, which threw a flood of light over the entire case, and which explained why the abscess lay so deep and the absence of adhesions. Six days later, after an exceptionally severe paroxysm of coughing, she expelled a piece of peanut nearly one-fourth of an inch in each of its dimensions, together with more than an ounce of creamy and fœtid pus. Signs of a cavity, incompletely emptied, were now manifest. After this she improved very rapidly and was quite well in six weeks. At the present, there are no signs to indicate that she had ever been the subject of a pulmonary abscess.

Aretæus,[2] Galen,[3] Bontius,[4] Tulpius[5] and others of the ancients, speak of the expectoration of pieces of lung tissue in cases of abscess, but at this late day their observations must be accepted as somewhat apochryphal. In one of my cases the patient presented me with a small piece of a fleshy substance which he was sure was a part of his lung. The microscope proved it to be a portion of beefsteak which he had eaten the day before.

CASE VI.—Mr. J. B., a farmer, aged 66 years, was attacked with pneumonic fever, affecting the right lung, in February, 1881. After the eighth day the acute and urgent symptoms declined, yet the cough continued and he lost flesh and strength. After having been ill three weeks he spat out, at once, a considerable quantity of pus. Purulent expectoration continued daily, in diminishing amounts, for more than three months, and occasionally for a year. I saw him first at the end of a month and readily detected a cavity at the base of the right lung. When the nature of his case had been explained to him, he said that he understood it thoroughly, and the next morning he had ready for my inspection a piece of his lung, which he had expectorated, and which, on examination, proved to be a piece of beef-steak. In the case of this patient there was sometimes fœtor of the breath in the morning, but it always disappeared after free expectoration. After a short time he began to improve, and in my experience I have never seen such an appetite developed in a convalescent patient as this man displayed. He literally dined hourly. In August, and again in November, he had hæmoptysis. He is now a hale and hearty old man, yet the peculiar cough is still developed whenever he catches cold, although I can detect no sign of a cavity.

The diagnosis is not very difficult in most cases if attention be given to the foregoing symptoms, and a careful physical examination is made. If the abscess is not evacuated, of moderate or large size and superficially located, there will be found dulness on percussion, with diminution or absence of the respiratory sounds. In the neighborhood will be noticeable the ordinary signs of inflammatory consolida-

[1] Williams, Lancet, N. Y. ed. Vol. II, p 3.
[2] Cockle, Lancet, N. Y. ed., 1857, Vol. I, p. 346.
[3] Sedgwick, Lancet, N. Y. ed., 1862, Vol. II, p. 173.
[4] Williams, Op. cit.
[5] Lancet, N. Y. ed., 1852, Vol. II, p. 215.
[6] Cockle, Op. cit., p. 346.

[1] Am. Jour. Med. Sci., Oct., 1881, p. 386.
[2] De Caus. et Sig. Acut., Lib. II, c. i.
[3] De Loc. Affec., Lib. V, c. iii.
[4] Med. Ind., 1631.
[5] Obs. Med., 1641.

tion. If the abscess lies deeply or is small these characteristics may be greatly modified or absent, and under these circumstances the diagnosis must be based largely upon the symptoms, and will sometimes remain doubtful. The hypodermic or aspirating needle may be safely and advantageously used for diagnostic purposes. After the abscess has discharged its contents the ordinary signs of a cavity will be present. In this connection I must again insist that great importance should be attached to the history and symptoms of obscure cases—cases in which the physical signs are insufficient in themselves to lead to a diagnosis. In one of my cases I was compelled to rely exclusively upon the symptoms for diagnosis.

CASE VII.—Mr. J. S., a farmer, aged 42 years, was engaged during the first week in January, 1880, in hauling clover. Whilst at work he took a severe chill, followed by all the ordinary symptoms of pneumonic fever. At first the entire left lung became hepatized, and on the third day the base of the right also, with great dyspnœa. Resolution occurred in due time in the left lung, but not in the right. The cough continued and became more powerful and paroxysmal; deep breathing caused pain and cough; evening fever and perspiration were marked, and the patient became greatly prostrated and discouraged. The expectoration was scanty, muco-purulent, and had a salty taste. The urine was scanty and loaded with urates. During the fourth week he occasionally raised a small quantity of pus, which had a sweetish, turnipy and nauseous taste. On some days this was the only kind of expectoration, and when this was the case he was pretty sure of a night without fever, but if the sputæ were scantier, less purely purulent and with a saline flavor, fever and perspirations invariably occurred. When the expectoration was purulent the urine was also more copious and clearer. At the end of the sixth week he expectorated a thick mass of pus in which was incorporated some small black objects, which were supposed to be pieces of clover hull. From this moment improvement began. For ten or twelve days the expectoration continued purulent. The signs of consolidation disappeared very quickly, and he was quite well within a month. No signs of a cavity were ever detected.

Abscess of the lung may cause pyæmia,[1] and it has been found to be rather frequently associated with cerebral abscess.[2] Phthisis followed in one of my cases.

CASE VIII.—B. S., male, aged 18 years, with a strongly inherited tendency to consumption, was attacked with pneumonic fever in March, 1879. The lower two-thirds of the right lung was hepatized. On the tenth day, and with no amelioration of the symptoms and no suspicion of abscess, he suddenly expectorated a tea-cupful of pure pus. For several days he expectorated from a half pint to a pint of purulent matter in twenty-four hours, but the quantity gradually diminished and ceased in six weeks. Signs of a cavity in the posterior part of the middle lobe of the right lung were manifested. For a while he continued in a most desperate state, but he afterwards improved very much. During the summer he coughed only on active exertion, and the signs of a cavity disappeared, yet he continued too weak to work and failed to gain flesh. During the next winter he caught cold often and developed a constant cough, and died in the summer of 1881 with all the symptoms of fibroid phthisis.

In the last of my series of cases a lady who was informed by her physicians that she had pulmonary consumption, has been entirely relieved of all her symptoms by the discharge of an abscess.

CASE IX.—Mrs. S., aged 37 years, has been an epileptic for twenty years. She has had a cough, constant, although varying in severity, with progressive loss of weight, for two years. This was not preceded by any illness. On August 1, 1885, she had a rigor of three hours' duration, which was followed by fever, pain in the right side, rusty expectoration, etc. I saw her on the eighth day, with a pulse of 136, respirations 35 and temperature 104.5°. There was dulness on percussion over the right lung as high as the third rib, with bronchial respiration in front, and behind down to the angle of the scapula, but below this there were no breath sounds audible. On the following day the temperature fell to 95° and the patient seemed to be *in extremis*. From this she rallied, but the pulse and respiration rate remained high, and after two days there developed an evening fever with profuse and offensive sweating. The paroxysmal cough was very powerful, often brought on vomiting and only caused the expectoration of an insignificant amount of muco-purulent matter. On the sixteenth day she suddenly brought up about four ounces of almost pure pus. Purulent expectoration continued for nearly a month, when it gradually ceased. She began to mend as soon as the abscess discharged, and is now quite well. She now has better health than she has had for years. Up to the tenth of November she had already gained twenty pounds in weight. After the discharge of pus there was tympanitis, gurgling and cavernous breathing, but these signs have disappeared. With ordinary breathing there is now a diminution of the respiratory sounds at the right base behind and at the side, and with forced inspiration there is loud crackling and moist râles. Deep breathing causes a single dry cough, otherwise there is none.

Pneumonic abscess is certainly a condition of much anxiety and gravity, yet, relying upon the experience which I have placed before you and the published cases of others, I think myself justified in believing that the danger has been greatly overrated by many authors.[1] Not one of my patients died from the direct effects of the lesions, although some were old and feeble and others were greatly debilitated, and all were very ill indeed. Necessarily there will always be a frightful mortality amongst those cases in which the abscess attains a monstrous size, or is discharged into one of the great cavities. In most of these cases death is inevitable and must ensue early. In those cases, also, in which the collection of pus is of more reasonable dimensions, but has an insufficiently free discharge, or in which dangerous complications occur, or which happen in cachectic and broken down constitutions, the death-rate will always be high. But in the case of small or medium sized abscesses, with free openings into the bronchi, and in ordinary subjects, I hold that a fatal termination is the exception and not the rule. When death occurs it may take place very early,[2] or it may be postponed for two or three months, [3]or even longer.

Cockle[4] relates a case in which death occurred in ten days from the appearance of the first symptoms. In this case the purulent cavity was only the size of a pigeon's egg, lined with false membrane and solid walls of considerable thickness. The walls and contents were not fetid, although the breath and sputa had been. In this case it is scarcely possible that the small abscess was the cause of death, which was probably due to the intensity of the original disease. Molson's[5] patient, who was an intemperate woman, aged 35 years, began to expectorate large quantities of purulent matter on the tenth day of an attack of pneumonic fever. The temperature, which had kept steadily at about 104°, fell quickly to 99°, and she died on the following day. The abscess, which was large, was seated in the lower lobe of the right lung.

If recovery ensues it may be either complete or partial, and the duration may be short or greatly prolonged.

[1]Holmes' System Surg., Am. ed., Vol. I, p. 661.
[2]Swett, Op. cit., p. 93, and others.

[1]Huss, Die Lungenentzündung, etc., Leipzig, 1864; Jürgensen, Op. cit., p. 147; Green, Op. cit., p. 859, etc.
[2]Molson, Med. News, Nov. 1, 1882, p. 580; Cockle, Op. cit., p. 346.
[3]Green, Op. cit., p. 859.
[4]Op. cit., p. 346.
[5]Op. cit., p. 580.

The ordinary treatment of pneumonic abscess has, until quite recently, been symptomatic and expectant. Now, however, this field is being invaded by the operative surgeon, and the question of what is the best management of these cases is, in many minds, in an unsettled state. As to the general results of the medicinal and operative plans of treatment, it can be said that the former, although fairly successful, leaves much to be desired in some cases, whilst the latter has not yet come up to our anticipations. Unfortunately it may be said of the majority of the few cases which have thus far been submitted to operation, that the operation was a success—but the patient died. Let us first consider the medicinal and expectant plan of management, and afterward the indications for more radical measures.

There are some remedies which, I am sure, are of especial value in the treatment of these cases, and at the head of these I would place cod-liver oil. I usually prescribe it in the form of a recently prepared emulsion, combined with the hypophosphites of lime and soda or, what is better in some cases, muriates of ammonium and sodium. It should be given in small doses, frequently repeated. Phosphorus and the iodides of iron and potassium are useful in properly selected cases. Strychnia I invariably prescribe as a tonic to the respiratory muscles, in order that the cough may be rendered more powerful and efficient. Sage tea, atropia, etc., may be required in some cases to check excessive perspiration. Mild counter-irritating embrocations to the chest I believe to be useful, and I usually prescribe a terebinthenate mixture for this purpose.

If the breath or sputa should be fetid, inhalations of iodine, carbolic acid, salicylic acid, turpentine and similar agents may be tried for the purpose of correcting this. After you have experimented with the entire list you will regard turpentine as the most generally useful. My plan of using it is to keep the atmosphere of the apartment constantly saturated with its fumes. The cough is almost always a distressing symptom, and yet I believe that in this powerful cough lies much of the patient's safety, and consequently I am not in the habit of administering any sedative remedies for its relief. In those cases in which, although an opening into the bronchi exists, the purulent and decomposing secretions are not promptly removed, with, always, ill consequences, an effort ought to be made to ensure the free and frequent evacuation of the cavity. This may be done in a variety of ways. A deep, forcible inspiration will often cause coughing, with the ready and efficient expulsion of the morbid matters.

As a therapeutical curiosity the method of Gadbury[1] for evacuating lung cavities may be mentioned. He forcibly inflates the lungs with a rubber hand-bag, forcing the air freely into all parts of the respiratory tract, which causes coughing and the expulsion of the accumulated cavernous secretions. Rokitansky[2] has proposed to make use of the benzoate of soda for the same purpose. This agent is an irritant to the bronchial mucous membrane, and when inhaled in solution as a spray, causes prolonged and powerful coughing by which all the fluid in the tubes and cavities is expelled—thus literally washing out the lungs.

[1]Boston Med. and Surg. Jour., March 3, 1881, p. 202.
[2]St. Louis Med. and Surg. Jour., Jan. 20, 1880, p. 59.

Patients sometimes discover for themselves that when they assume some particular position the cavity is very readily emptied of its contents, and when this is the case they should be directed to place themselves in such posture at frequent intervals. In some of these cases in which the discharging abscess cavity is situated in the base of the lung its closure may be hastened, sometimes very much, by the wearing of an elastic abdominal bandage, having a firm upward pressure, as I recommended some years ago in the treatment of empyemic fistula.[1]

The diet should be nourishing and slightly stimulating. Food should be given at frequent intervals, and not in excessive quantity. If necessary, digestion may be aided by appropriate agents or supplemented by the use of artificially digested foods. The regimen and nursing should be of the very best. Particular care should be taken that the patient changes his position at suitable intervals, and, if able to do so, he should have easy exercise.

Turning now to the operative measures which are available for the relief of purulent accumulations within the lung, let us consider first the conditions demanding an operation, and finally, the method of its performance. Before an abscess of the lung has evacuated its contents it is perfectly evident that there are but two modes of procedure, the one pure expectancy, together with the treatment of symptoms, and the other the opening of the cavity by mechanical means. Whether the one or the other of these is best and ought to be followed in any particular case must ever depend largely upon circumstances. Among these may be mentioned the state of the patient, the locality, size and duration of the abscess, and the skill and tact of the medical attendant. There can be no iron rule of universal applicability in these cases. My opinion has been already given that the vast majority of these abscesses will evacuate their contents into the bronchi, with the eventual recovery of the patient. In a certain proportion of cases, however, the discharge is into one or more of the neighboring great cavities, with, usually, a fatal result. Has this ever occurred in the case of small abscesses? If it has my memory fails to recall the report of the case. Would the external evacuation of a small abscess add anything to the dangers of the patient? Every one will admit that it does. If, then, small abscesses generally result fortunately, through natural agencies, why should we subject our patients to a dangerous operation, offering at best only problematic advantages?

If to these objections to operating we add the acknowledged diagnostic difficulties in exactly locating the purulent depôt and the known failures of accomplished operators in striking it, I think we have abundant reasons for practicing expectancy in this class of cases. But when we come to interrogate those larger abscesses the answers cannot be arrived at so easily nor made so emphatic. The larger the abscess the more apt will it be to rupture into the pleura, pericardium, mediastinum, etc., with a probably fatal result. Will an external opening always, or frequently, prevent this? Sometimes it will, and again

[1]Cincinnati Lancet and Clinic, Oct. 15, 1881, p. 348.

it will not. In the case of the largest of these abscesses death is probably inevitable, and an operation can do no good and may hasten the fatal issue. Even in the case of moderately large abscesses recoveries are not infrequently reported after the expectoration of their contents. Very few, indeed, have been cured by an operation. Here, however, is the proper field for operative treatment and for further research, and after a wider experience has been gained in it the proper management of these cases may be more authoritatively formulated. For the present, they must be left to the good judgment of individual practitioners. Personally I should watch such a case in a sort of armed expectancy, pursuing a conservative course, yet ready to give my patient the doubtful benefits of an operation should occasion offer.

In case the abscess has already discharged through the bronchi, the rule of action to be adopted is clearer, and may be stated as follows: When the cavity is being freely evacuated, no matter what the symptoms may be, an operation is clearly inadmissible. But if the opening in the bronchus is not of such nature as to allow of a free exit of purulent matters, or if they are prevented from escaping by other causes, and the patient is steadily losing ground and approaching closely to the danger line, an operation is demanded. This, however, should not be done hurriedly, but rather delayed a reasonable time, for in some of these cases Nature enlarges the opening or removes other impediments to a free discharge, and improvement and recovery quickly follow.

The first account of the external opening, by an operation, of a pulmonic abscess of which I have any knowledge, is given by Sedgwick[1]. It is true that the operator thought he was treating an empyema, caused by the bursting of the abscess into the pleura, yet a careful reading of his paper will show that, like Radek[2], he was mistaken in his diagnosis. The case, in abstract, is as follows: A medical man, aged 58 years, was attacked with pulmonary inflammation, in the course of typhus fever, in the spring of 1850. Ten days after the onset of the pulmonary complication, symptoms of a large abscess in the lower part of the right lung appeared, and he began to expectorate purulent matter, with signs of a cavity. A bulging developed between the sixth and seventh ribs at about their middle, and at this place there was removed more than a quart of stinking pus. When the fluid ceased running, air in great abundance passed through the canula, and when the patient coughed, the current became so strong that it blew out a candle which chanced to be near. The patient improved at once and the opening closed in three months. He resumed his duties, but during the following winter he caught cold frequently, a relapse followed, and in the spring it became necessary to make a second operation, this time giving exit to three pints of pus. Subsequently the opening was maintained patent by the constant use of a gutta-percha plug an inch and a half long. He regained moderate health, returned to his employments, and died in 1857, seven years after the first operation. An autopsy was not permitted. During the past six years, the operation has been done often, and by a number of operators, both at home and abroad.

Having, then, a patient with a large unopened abscess, or one which, although opened, has an insufficient discharge and who is steadily declining, and who is evidently doomed to a greatly prolonged illness or perhaps death, the good sense and discrimination of the surgeon will say that an operation is indicated and should be done. This having been decided upon the abscess cavity should be exactly located with the hypodermic or aspirating needle, and this used as a guide in the subsequent puncture. The locality selected for the opening should invariably be that point where the abscess approaches nearest the surface. Generally the pleura is involved in the inflammation, the pleuritis plastic and the layers adherent over the purulent cavity. The more chronic the case the more apt is this to be so. Fenger and Hollister[1] say that if an incision is made down to the intercostal muscles, over the seat of the abscess, and a needle thrust into the lung it will not move synchronously with the respirations if adhesions are present, whilst a contrary condition is indicated by such movements. If adhesions are absent several needles might be inserted through both layers of the pleura and allowed to remain until inflammation is set up, when, if the chest wall is kept quiet, adhesions may form and the operation completed at another time.

The patient being under the influence of chloroform, an incision of suitable length is made in an intercostal space down to the pleura. A medium sized trocar should then be slowly and gradually bored through the intervening structures until the cavity is reached, and the purulent contents allowed to escape. Through the canula a drainage tube of soft rubber and a smooth internal extremity should be passed and allowed to remain. Instead of the trocar the electro- or thermo-cautery may be used in opening the abscess, and this method is preferred by Albert, Koch and Fenger.[2] The drainage tube must be shortened from time to time as the cavity contracts. The outer opening should be covered by an absorbent dressing, which should be frequently renewed. I should object to injections of any kind, and especially to those containing carbolic acid or other poisonous substance in any considerable proportion.

In closing I will offer for consideration the following conclusions, which I think are warranted by the facts above stated:

1. The issue of pneumonic fever in abscess is rare, but this rarity has been generally overestimated.

2. These abscesses vary much in size and are most frequently found at the base of the lung.

3. They may, in some cases, be caused by excessive jarring or other motion.

4. They are usually formed rapidly.

5. In some rare cases the purulent contents may degenerate into a cheesy mass, to again soften, liquefy and be discharged.

6. The symptoms and signs are generally quite distinctive and sufficient for an accurate diagnosis.

7. The majority of cases recover, but in a certain proportion a cure is impossible.

8. Expectant and medicinal treatment has, thus far, given the best results and the majority of cases should be managed upon this plan, but under certain conditions the most radical measures for relief are not only justifiable but imperatively demanded.

[1]Lancet, N. Y. ed., 1869, Vol. II, p. 173.
[2]Centralb. f. Chir., 1876, No. 44, p. 750.

[1]Am. Jour. Med. Sci., Oct. 1881, p. 386.
[2]JOURNAL AMERICAN MEDICAL ASSOCIATION, July 17, 1884, p. 67.

OBSERVATIONS UPON THE STRUCTURES TO BE INCLUDED IN THE SUTURES IN THE OPERATION FOR FIXING A FLOATING KIDNEY.

BY L. H. DUNNING, M.D.,

OF SOUTH BEND, INDIANA.

The question which the writer will discuss more particularly in this paper is, Shall the Renal Capsule be included in the Sutures? That this is an important question and one that has not been definitely settled, those familiar with the medical literature of the last few years are well aware.

The writer has deemed it advisable to refer to some of the statements of a few of the writers upon the subject. Morris[1] states that "In Hahn's first two cases the sutures included the peri-renal fat, and one of them was unsuccessful. In the third case he included the renal capsule in the stitches, but with what result is not stated. Gilmore[2] included the renal capsule but the suture cut its way out and set the viscus free. Weir[3] included in one case the peri-renal fat and was successful. Morris concludes that "Experience will have to decide whether there is any necessity of penetrating the envelope of the kidney." He goes still further, and says, "It is not adequately proved that any suture is requisite to attain the end in view."

Lucas,[4] in a discussion at the annual meeting of the British Medical Association, says: "Painful moving or floating kidney, being only a mechanical disturbance, admits of relief only by mechanical means. Simple exploration and replacement through an incision in the loins, would probably be sufficient, in a majority of cases, for the cure of this condition, the adhesions resulting serving to retain the organ in position. Stitching the capsule to the parietes, or, as it is termed, nephrorraphy, is a somewhat serious but still simple undertaking. In eight patients in which it has been performed, the patients have all recovered and were relieved." In a previous article[5] the writer took the ground that if the peri-renal fat and capsule are intact, *i. e.*, if they retain their intimate relations to each other and to the kidney, which may be ascertained when the organ is exposed by the incision, there is no need of including the nearer investing capsule. The reasons for this conclusion were based upon experiments briefly stated. Since the publication of that article the writer has made numerous experiments upon the kidney of animals just slaughtered, a few observations upon the kidney of the cadaver, and has had one opportunity to verify his conclusions by experiments made upon a patient during an operation for fixing a floating kidney.

The animals seen by me and experimented upon were sheep, calves and beeves. I was present when they were slaughtered and hung up, so that my observations respecting the kidney commenced a few minutes after the death of the animals. When first hung up and opened, the organ in question in all the animals was quite movable, especially so in the sheep, in which it could be moved back and forth and up and down several inches, without doing violence to any investments of the organ or to the ureter, blood vessels or nerve. The right organ was slightly more movable than the left and slightly larger. It was found, on moving the kidney, that not all the peri-renal fat went with it but that the organ was uniformly surrounded, except a small area upon the anterior inferior aspect, by an investment of fat that accompanied it in all its movements. This investment was found to be quite firmly adherent to the renal capsule and the nerve vessels and ureter for a short distance nearest the hilum. It was not so closely adherent, however, but that considerable freedom of movement of the kidney was possible within the investment. By grasping the fat in the hand, just below the inferior portion of the kidney, and making gentle yet firm pressure, the kidney could be made to ascend from three eighths to half of an inch, without doing violence to any of the tissues under observation.

The fat investing the kidney was connected with that lying upon the psoas and quadratus muscles by irregular bands of adipose and connective tissue, so that the movements of the kidney were restricted to certain limits. It was observed with considerable interest that the attachments of the adipose tissue to the capsule were quite as difficult to break up as it was to tear the adipose tissue. These attachments seemed to me to be the strongest about the center of the two surfaces of the kidney and near the hilum. That small area but lightly covered with fat possessed interest to me and was carefully examined. On close inspection, it was found that a thin layer of connective tissue, with its attachments to the capsule, stretched across this surface and was lost in the adipose tissue surrounding it. I tried, in various ways, to forcibly remove the kidney from its investing fat without doing violence to that organ. The only way I accomplished it, without lacerating the kidney, was previously incising or tearing the fat by squeezing it with the hands in various directions. When the organ did leave its investment, the direction it was most prone to take was downward and forward.

Before proceeding to another branch of the subject, let me briefly summarize. There was found,

1. A normal, not exact, range of mobility.

2. An investment of fat accompanying the kidney in all its movements, except an up and down movement, within its own circumference.

3. The attachments of the tissue were as strong as the tissue itself.

4. It was difficult to remove the kidney from its investment without lacerating it.

Now, if it be shewn that these conditions are identical with, or analagous to, the conditions found in the living man, then we have some light received that will aid us in deciding the question. Morris says experience will have to decide. A part of the conditions I have described as having been found present in the lower animals just slaughtered I have been able to demonstrate as having been present in at least one human being. On October 10, 1885, assisted by Drs. Hitchcock, Kittering and McAllister, of this

[1] International Cyclopædia of Surgery, Vol v, p. 1096.
[2] Ibid.
[3] N. Y. M. Journal, Vol. 37, p. 170.
[4] Journal American Medical Association, Jan., 1884, p. 82.
[5] The Journal, Feb. 21, 1885.

city, I did the operation for fixing a floating kidney, the patient being an unmarried female, 35 years of age. Before the operation, it was easily demonstrated that the right kidney, by a change of the position of the body, would move transversely across the abdomen about four inches and downward and forward about five inches. There was nothing unusual about the operation, except that the space between the twelfth rib and the crest of the ileum was so short that a slightly crucial incision was made, three inches long, commencing within two and one-fourth inches of the vertebral column, on a level with the lower border of the twelfth rib, and extending downward and outward. No difficulties were encountered in cutting down upon the kidney. As soon as the cellular tissue covering the adipose tissue was cut through, quite a quantity of that tissue projected up into the wound and was cut away with scissors. With a finger in the wound, I made search for the kidney and found it after well-directed pressure had been made over the abdomen. The kidney was observed to be uniformly surrounded by fat, except that the investment was thinner over the anterior inferior aspect of the viscus. This investment accompanied the kidney in its movements away from the incision. A portion of it was seized with dressing forceps and the mass (kidney and investment) was drawn down to the edge of the incision. Now, I could, and did for the most part, examine with the finger every portion of the external surface of the kidney. The envelope was found intact, as just described. With two fingers in the wound I could move the kidney slightly upward and downward in its fatty envelope, and further, could distinctly feel the upward and downward movement of the viscus during inspiration and expiration.

It is not likely that these points would have been all observed had not the experiments above outlined been conducted previous to the operation. Now was forcibly brought to my mind a fact I have never seen stated, viz: No means of fixing a movable kidney should be employed that does not comprehend and admit, to a considerable extent at least, the normal movements of the viscus during inspiration when changes of the position of the body occur. The mobility of this organ is undoubtedly Nature's method of preventing undue pressure being made upon it during respiration and postural changes. Undue and uneven pressure would undoubtedly induce disturbances of circulation, with its attendant evils, some of which might and would likely be disastrous.

Which method, then, shall be employed in anchoring the kidney, or, in other words, what structures shall be included in the sutures? Simple incision and replacement of the organ has been suggested, but I have not yet read or heard of any one who has had sufficient confidence in this method to employ it. I have no confidence in it since, in both cases in which I have operated, the kidney was inclined to slip away the moment the abdominal pressure was removed, or there was the slightest change in the position of the body of the patient. It would undoubtedly be the preferable method provided it were successful, for then fixation would occur without undue adhesions and with an unbroken capsule, both of which results are desirable. As between the two methods of suturing, it seems to me there are valid and conclusive reasons for adopting one and rejecting the other, and, in order that these may be made more apparent, the structure, attachments and office of the renal capsule should be considered. This capsule is made up of dense areolar tissue. In its structure the white fibrous tissue is largely in excess of the yellow elastic tissue, hence it is very firm and nearly inelastic. That it is practically inelastic may be shown by taking a strip of the capsule two inches long and half an inch wide; seize each extremity by a pair of forceps and make gentle yet firm traction, and it will be found that before any appreciable stretching of the strip will occur it will tear at the edges or at the limits of the grasp of the forceps. Take in the hand a kidney with the capsule intact. With a conjunctivæ forceps raise a portion of the capsule and separate it from the kidney over a considerable area. Now the capsule can be drawn away from the kidney, but in so doing the shape of the kidney will be invariably changed in ratio to the amount of force used, thus shewing a lesser density and greater elasticity of the structure of the kidney than that of the capsule. Other points may be observed. The capsule is easily torn if once an opening be made in it. Stitches passed with a needle with cutting edges tore out with less force applied than those passed with a round needle. The capsule is denser and thicker as it approaches the hilum. In this region the attachments are strong, the tissues dense and the capsule is two or three times as thick as elsewhere. That portion lining the sinus and reflected upon the ureter nerve and blood vessels is so strong and so firmly adherent that careful dissection or strong force is requisite to detach it. Here is a wise provision of nature, and here is found the great reason why a moving kidney pushed far away from its moorings, at times falling by its own weight or pushed downward by pressure, is not more frequently or more intensely painful.

Take the kidney in one hand and the ureters and vessels in the other. Hold the kidney firmly and make strong traction upon the cord. Now you can readily demonstrate that until the capsular adhesions are broken up or the capsule itself torn, there cannot possibly be any stretching of the nerve, blood vessels or terminations of the ureter, within the kidney; for in this effort all force exerted is expended upon the capsule, its attachments, or the structures to which it is adherent. If sufficient force be used, the kidney will be lacerated before the other structures will give way. This fact I noticed in my experiments; gentle yet firm force, intermittently applied, did, in a few instances, cause a gradual separation or giving way of the capsular attachments, and the stretching or traction upon the internal nerves, blood vessels and ureter could be readily produced. It seems to me probable that this sometimes occurs in the patient, and then occur the attacks of intense pain sometimes experienced by subjects of floating kidney. Two other offices of the capsule of the kidney may be mentioned. It acts as a barrier to the spread

of inflammation to the kidney from surrounding structures or organs, and furnishes a surface for the attachment of its fatty envelope.

In view of the facts stated, it seems certain that if the renal capsule be included in a sufficient number of sutures to hold the kidney firmly in position at the bottom of the incision, the normal movements of the organ will be entirely prevented, and thus it will be subjected to undue pressure. This is the greatest objection to suturing the structure under consideration. In truth, it would appear to be a sufficient reason for absolutely condemning such a procedure. Other reasons opposed to such a procedure are apparent when the facts already stated are remembered. Should the sutures cut their way out of the capsule—and this they would be likely to do since the movements of the viscus are from above downward, so that every respiration of the patient brings a strain upon the sutures in such a direction as to render them likely to tear or cut the tissues they include—we have then a broken capsule, which will render the attachments of the invest-fat less effective, and in part remove the barrier to the spread of inflammation to the kidney. It would also render less secure the attachments of the capsule to the organ near the hilum and thus diminish the protection to the ureter, blood vessels and nerves against violence in the movements of the kidney. To some it may appear that the last mentioned danger is imaginary, or at least remote. That it is remote may be conceded, but it is none the less real and is entitled to some weight in deciding the question under discussion.

Having thus shewn what I deem valid and sufficient reasons for condemning the method of including the capsule in the sutures, it yet remains to shew the advantages and efficiency of suturing only the perirenal adipose tissue. What we should aim at in this operation is to firmly fix the kidney in a favorable position, in such a manner as to permit of sufficient motion to prevent undue pressure being made upon it, and that too with an unbroken capsule. The facts already stated in this paper are the basis of my conclusion that these desiderata can all be realized by stitching the investing fat to the edges of the incision. This investment, with its attachments, when intact, are strong enough to permit the kidney to be favorably placed and held in position, and when so held the organ will have considerable freedom for motion within the circumference of its envelope. The capsule will be untouched. Experience has shewn that in a vast majority of cases this method has been successful in anchoring the kidney and in affording relief. If the nearer investing fat be intact and included in the stitches, the writer cannot see how anything more desirable for a good result can be obtained. If failure be the result, it must be from causes independent of the method of operating.

The writer now ventures the opinion that in cases favorable for operating and in which there were failures, either the kidney had left its fatty envelope or else there was little or none of it included in the sutures; and, furthermore, that in some of the cases in which the capsule was supposed to have been raised and penetrated, only a portion of this structure was stitched to the parietes. In his first case, the writer now believes he was so deceived, for experiment has shown him how difficult it is to separate and lift away from the organ sufficient of the capsule to be included in the threads, even after the removal of all adipose matter.

The writer's conclusions may be stated as follows:

1. The kidney has a normal range of motion.

2. The operation for fixing a floating kidney should comprehend and permit, so far as possible, this normal range of motion.

3. The capsule should be left unbroken, and, if possible, free from adhesions.

4. Stitching the capsule ignores the fact stated in the first conclusion and prevents the realization of the desideratum mentioned in the second, and from its very nature precludes the accomplishment of the second named desired result.

5. Suturing the fatty envelope recognizes the truth of the first conclusion, and fulfils the indications of the second and third conclusions; hence it is the method greatly to be preferred.

MEDICAL PROGRESS.

MATERIA MEDICA AND THERAPEUTICS.

Gelsemium and its Reported Antidotes.—Dr. Emil G. Reyfuss, of Philadelphia, at the close of an article on this subject, draws the following conclusions from his experiments on animals:

In the case of ammonia carbonate *vs.* gelsemium, the results were not only negative, but we had increase not only in the number but also in the intensity of the convulsions, death being accelerated in every case.

In the case of alcohol, the convulsions were of a milder type, but a fatal issue resulted in every case.

The same negative results were noticed in using the above two reputed antidotes together at the same time, with the exception that the onset of the convulsions were of quite a mild nature; those occurring later were, however, very severe, ending in death.

Morphine retarded death somewhat, and considerably moderated the symptoms.

Atropine. The same may be said of this agent as of morphine, it, upon the whole, affording somewhat more satisfactory results, though it did not prevent death occurring.

I am led to conclude, from a careful study of this subject, based upon the results of my experiments, as well as on the collection of cases occurring in the human subject, that in treating a case of poisoning by gelsemium in the human subject an emetic may be given at the very onset. One should not stop here, as little reliance can be placed upon the efficacy of the same, it appearing by reading the cases recorded that emesis took place only in one case in which emetics were used. Owing to the easy obtainment of such stimulants as ammonia carbonate, brandy, and tinct. digitalis, etc., these should be resorted to at once. In addition, I would suggest the early and repeated use of small doses of atropine

sulphate, given hypodermically to sustain respiration. Of course external use of sinapisms, rubbing, electricity, artificial respiration, etc., should be resorted to in every case.—*Therapeutic Gazette*, Oct., 1885.

MEDICINE.

THE TREATMENT OF FROSTBITTEN FINGERS AND TOES.—DR. LAPATIN, in the *Proceedings of the Caucasian Medical Society*, advises that fingers and toes which have been slightly frostbitten, and which subsequently suffer from burning, itching, and pricking sensations, should be painted, at first once, and afterwards twice a day, with a mixture of dilute nitric acid and peppermint water in equal proportions. After this application has been made for three or four days, the skin becomes darkened and the epidermis is shed, healthy skin appearing under it. The cure is effected in from ten to fourteen days. The author has found this plan very effectual amongst soldiers, who were unable to wear their boots in consequence of having had frozen feet. They were, in this way, soon rendered capable of returning to duty.—*Brit. Med. Jour.*, Sept. 5, 1885.

SURGERY.

TREATMENT OF JOINT DISEASES BY REST AND FIXATION.—DR. DE FOREST WILLARD thus sums up a paper read before the Lehigh Valley Medical Association, on August 19.

1. Rest subdues joint inflammation more effectually than all other means combined, often aborting, always lessening, an impending process. Its employment is indicated by nature; its beneficial influence is seen in every domain of medicine; in theory it is rational, in practice it fully proves its power.

2. The more perfect the rest, the greater will be the diminution of pressure, friction, tension, and inflammation, and the less will be the resultant ankylosis and suppuration.

3. The means for securing rest and fixation are exceedingly simple, and can be applied by every intelligent practitioner.

4. Counter-irritation is of secondary importance.

5. In inflammations of the sterno-clavicular, acromio-clavicular, and scapulo-humeral articulations the arm should be fastened to the body, which takes the place of a splint.

In elbow disease the member should be immovably fixed in a semi-flexed or in an extended position; pressure. aspiration, puncture, drainage, excision, etc., to be employed as necessary.

In the wrist and hand articulations the same principle is to be enforced, long-continued rest being neccessary. Early exit of purulent accumulations must be secured antiseptically by the bistoury, and the progress of caries carefully watched, the surgeon interfering only when nature is unable to properly accomplish separation or health fails.

In the ankle and foot the same will hold true, fixation by plaster or other rigid material being complete and permanent. Locomotion for even one step without the aid of crutches should be positively forbidden —an injunction which is equally applicable to diseases of the knee and hip.

At the knee, the question of counter-irritation, immobilization, or rest in bed with extension, will depend largely upon the amount of traumatism and the existence or absence of muscular rigidity. When nature indicates by the last-mentioned symptom that motion is harmful, delay in enforcing one of the latter measures is criminally negligent.

Serous effusion should be aspirated, pus evacuated antiseptically, free drainage maintained, and excision practiced as soon as it is decided that destruction has occurred.

Permanent rest and fixation, with the use of crutches, are far better than any form of extension that can be applied in the upright position.

In hip disease, horizontal extension with fixation answers best for the acute stage, Three months after the cessation of pain, if deformity has been largely reduced, the erect position may be assumed, provided the joint is put at rest by a fixation apparatus and the high shoe and crutches are used.—*N. Y. Med. Jour.*, Dec. 5, 1885.

CURE OF VARICES BY EXCISION.—MR. J. FARRANT FRY, in an article on this subject, draws the following conclusions: If palliative measures afford sufficient relief, it is unwise to operate; but of the various operations, the excision of the vein is the safest; and that, for its successful performance, the following details must be strictly carried out.

1. Excise through several small incisions (not more than an inch in length) in preference to removing one large piece, as by so doing the vein is occluded at several points.

2. Mark the site of the proposed excisions before applying the bandage, as the position of the varices becomes indefinite when the limb is rendered bloodless.

3. Apply the Esmarch's bandage carefully, so as thoroughly to empty the blood-vessels; or, the wound becoming full of blood, there will be considerable difficulty in dissecting out the vein, and very troublesome hæmorrhage may occur.

4. Ligature the vein at its upper end, and dissect it out from above downwards.

5. Remove as little as possible of the tissues surrounding the vein; but, if unavoidable, take also away the deep fascia (which is but feebly supplied with blood, and will not favor union), and allow the skin to adhere to the vascular muscle.

6. Apply the dressings, and bandage the limb, before removing the tourniquet. By this means hæmorrhage is avoided, and primary union encouraged.

7. Above all, the careful employment of antiseptic measures is necessary, both during the operation and in the subsequent dressings.—*Brit. Med. Journ.*, Sept. 5, 1885.

LIGATION OF THE COMMON ILIAC FOR ANEURISM.—DR. D. IGNACIO PLACENCIA reports the case of a man, æt. 34, upon whom he performed this operation on July 22. The ligature used was No. 13 surgical silk. The patient was well on September 5, and the tumor was reduced to the size of a small lemon, and was very hard.—*Crónica Médico-Quirúrgica de la Habana*, Nov., 1885.

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PUBLISHED WEEKLY.

THE EDITOR OF THIS JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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THE EXECUTIVE COMMITTEE OF THE NINTH INTERNATIONAL CONGRESS.

In our issue of November 28, we showed how the Committee of Arrangements appointed by the American Medical Association to provide a Preliminary Organization for the Ninth International Medical Congress had, at its last meeting, so modified the Rules regarding membership as to obviate all the objections that had been made to those previously proposed, and had proceeded so far with the selection of general officers and the organization of Sections, as to bring into existence an Executive Committee of the Congress with powers, duties and limitations as provided in Rule 10, and had then transferred to such Executive Committee authority to make all further appointments necessary to complete the organization of the Sections, and to take charge of the affairs of the Congress. We reminded our readers, also, that the Committee on Organization, in framing Rule 10, providing for an Executive Committee to be constituted of the President, Secretary-General, Treasurer and Chairman of Finance Committee of the Congress, and of the Presidents of the several Sections, authorized said Committee to elect such additional members as it might deem advisable, provided the whole number of the Executive Committee should not exceed thirty. This power conferred upon the Executive Committee to add to its own number within certain limits, was regarded as affording an opportunity for promoting a return of harmony and concert of action by electing to the Executive Committee a considerable number of the original leaders in the movement for a Congress in this country, who under other proposed rules and circumstances had declined to act.

The general officers and Presidents of Sections who were to constitute the Executive Committee of the Congress, after formally accepting their appointments under the Rules adopted by the Committee of Organization, assembled in New York, on November 18, 1885, and entered upon the discharge of the important duties that had been devolved upon them. After a free interchange of views it was decided to postpone the filling of all the more important vacancies in the organization of Sections, until such means for inviting coöperation and harmony of action as were within the control of the Committee had been fairly tried. Finding that the maximum number of the Executive Committee, as provided in Rule 10, permitted the election of six or seven new members, the Committee proceeded at once to unanimously elect Drs. William Pepper and J. M. Da Costa, of Philadelphia, Surgeons J. S. Billings, U. S. A., and J. M. Browne, U. S. N., Dr. Christopher Johnston, of Baltimore, and Dr. Geo. J. Engelmann, of St. Louis, as members of the Executive Committee. The last four named were selected partly because they were members of the original committee of invitation appointed in Washington, May, 1884, and partly because they represented important interests in the profession. The first two were selected because of the high official positions they occupied and the extent to which they were known both in this country and in Europe. And it was hoped that all the gentlemen named were capable of appreciating the importance of the object to be attained, and of personally rising above all mere individual considerations, so far as they might be supposed to conflict with the maintenance of the honor and interests of the whole profession. That each of the gentlemen appointed might know exactly both the limits of power and the numbers of the Executive Committee, a copy of Rule 10 was enclosed in the official notices to them, and also a statement of the fact that the filling of all vacancies had been postponed until their decision should be received.

Such was the course of the Executive Committee, acting within the limits of the powers conferred upon it by the Rules under which its members had accepted office and in good faith to all parties. Had these six gentlemen appointed accepted the positions offered, it is quite certain that the eminent men who were originally appointed Presidents of the three Sections having that office now vacant, would have cheerfully returned to those places, and if not, the places would have been filled by such as the new appointees on the Committee should name, and every desirable interest in the profession could have been harmonized within

thirty days. But what has been the result? Let the following, which was received at this office in the form of a printed slip after THE JOURNAL for the 12th inst. had gone through the press, answer:

THE INTERNATIONAL MEDICAL CONGRESS OF 1887.—A meeting of members of the medical profession interested in the International Medical Congress in 1887, to which prominent medical men from a number of cities were invited, was held at the Hall of the College of Physicians, Philadelphia, December 4, 1885, Dr. D. Hayes Agnew in the chair.

It was stated that official notice had been given of the election, as members of the present Executive Committee of the Congress, of Drs. J. S. Billings and J. M. Browne, of Washington, D. C.; Christopher Johnston, of Baltimore; George J. Engelmann, of St. Louis; and J. M. Da Costa and William Pepper, of Philadelphia.

A general and strong expression of opinion was made in support of the American Medical Association and its Code of Medical Ethics, and sincere regret was expressed that hasty action on the part of the Association, and the introduction of false issues, had imperiled the success of the Congress. . . . . .

As an evidence of the earnest desire which is felt for the restoration of harmony upon this subject, and for the reorganization of the Congress on a basis which would command general support, and thus insure success, the view was unanimously expressed that if the present Executive Committee should unite with them the Original Enlarged General Committee, and recommence the organization *de novo*, this course would insure the desired result.

Following this in the *Medical News*, of December 12, is the announcement that all the six gentlemen have declined to accept the appointments. Instead of each individual weighing his own responsibilities and appreciating his own opportunities for promoting the welfare of the profession, and opening free correspondence with the Executive Committee for further information or possible changes, if any were needed, the whole matter is submitted to a partisan caucus for an evening of one-sided discussion, ending in a simple declination to accept. And this from the leaders of the party who claim to be the only eminent representatives of the science and art of medicine in America. Oh, Sense of Propriety, whither hast thou fled! The only suggestion accompanying the declination is, that the present Executive Committee shall unite or blend with itself the whole of the Original Enlarged General Committee, and "recommence the organization of the Congress *de novo*." In other words, that the present Executive Committee shall openly violate the tenth Rule, to which it owes its own existence, and from which it derives all its powers, then abrogate itself and attempt to leave the organization of the Congress wholly to that imaginary body called the Original Enlarged General Committee. We say "abrogate itself," because each member of the present Executive Committee holds such membership only by virtue of his appointment either as a general officer of the Congress or as President of a Section; and the moment he vacates such office to commence the organization of the Congress *de novo*, he ceases to be a member of the Executive Committee, and the way is open for the Committee of Arrangements, composed of one representative from the profession of each State and Territory, etc., to fill their places and resume control of the whole work.

We cannot believe that the six influential gentlemen to whom appointments on the Executive Committee were tendered either considered with sufficient care their own individual responsibility, or appreciated the real nature of the suggestion to which they lent their sanction. And we therefore warmly commend to their consideration the following paragraphs from an editorial in the *Medical News* of the same date as that containing the account of the medical caucus above mentioned: "The time has now arrived when honor rises superior to all other interests, and demands that we shall combine for international purposes, and make good the invitation which, in the name of the medical profession of this country, was extended to our brethren of foreign lands to hold their next Congress at Washington. Everyone who has had the true honor of his profession at heart, regardless of the mistakes that he thinks others have made, has looked upon the situation with feelings of deepest sorrow and mortification, and has felt that, under the circumstances, any honorable sacrifice to avert the threatened disaster was a duty he owed to his profession and to his country. . . . . We cannot but hope that the few who now have it in their power to effect this harmony will use their influence to that end, and by their action, under the present trying circumstances, show that they are ready to sink personal considerations for the public good. The occasion is one for the display of the highest patriotism, and the end to be attained is worthy of the greatest sacrifices." So thought the members of the present Executive Committee of the Congress, and so they have acted in the only direction within their power. And in the same spirit, we trust, they will continue to act in the prosecution of their work, and they cannot fail to be sustained by the great body of the medical profession, at home and abroad, until their work is crowned with that abundant success which, in the opinion of every impartial mind, it certainly deserves.

THE NEW ANTIPYRETICS.

However conservative the Germans may be in social and political affairs, there is no question as to their being progressive in medical matters. They are eager, restless investigators. Within the last two years synthetical chemistry in Germany has signalized itself by the production of several compounds which have been found to exert marked antipyretic power. Their names have already become familiar to the medical profession throughout the civilized world. Antipyrin, was derived from chinoline by L. Knorr, a chemist of Erlangen, and brought to the notice of the profession in 1884, by Dr. Filehne through the columns of the *Zeitschrift für klinische Medicin.* Kairin also was introduced into use in medicine by Filehne, while thallin was discovered by Skraup, and recommended as a febrifuge by Dr. von Jaksch, of Vienna. The rapidity with which their employment has spread among the clinicians of Europe and in this country is astonishing, and the literature upon the subject has already become extensive. Resorcin chinolin, brenzmatechin and hydrochinon likewise possess antipyretic virtues, but either by reason of associated disadvantages or inferior power are less esteemed than the three named above. Of hydrochinon, however, it must be said that Dr. Kinnicutt, of New York, has experimented carefully with this agent, and reported favorably upon it before the Academy of Medicine in that city. (See *New York Medical Record*, May 30, 1885.)

In the same city Dr. Van Schaick and others have been testing the action of inspissated ox-gall, and claim that in doses of thirty grains or more it also acts as an antipyretic. Dr. Tovar, of Cuba, has lately announced that parthenine, one of the constituents of parthenium hysterophorus, a plant of that island, possesses febrifuge as well as antiperiodic power. The natives of Cuba use this plant as a substitute for quinine, and with the exception of salicin, salicylic acid and salicylate of soda, parthenine is the only one of the new antipyretic agents which, like the quinia salts, exerts specific power over fevers. Parthenine deserves further investigation.

Although the physiological action of antipyrin, kairin and thallin is not fully understood, it is well established that they do not depress the bodily temperature in health in doses which certainly lower it when elevated by disease. Brouardel and Paul Loye assert that kairin and thallin destroy the hæmoglobin and lessen the power of the blood in consequence, to transport oxygen and carbonic acid to and from the tissues. According to the same observers antipyrin does not exert this destructive action on the blood, but is nevertheless toxic in its effects, producing in poisonous doses tetanic convulsions, similar to those of strychnia poisoning. Unlike resorcin, these three agents possess no antifermentative or antiputrefying properties. Antipyrin, aside from its antithermic action, possesses hæmostatic virtues which Henocque pronounces superior to those of ergotine and chloride of iron.

Since these agents are all pronouncedly antipyretic, the query arises as to how they exert this effect? Filehne has expressed the opinion that it is through the nervous centre which regulates the production and loss of the animal heat; while Jaksch, Bettelheim and others have advocated the theory that it is due to a dilatation of the peripheral vessels in consequence of which a greater amount of blood is subjected to the cooling action of the external atmosphere. Some influence has also been attributed to the free diaphoresis which follows the exhibition of these drugs.

Another query concerning the effect of these antipyretics is, whether or not their employment is attended by danger or any contraindicating disadvantages. The general opinion of clinicians is that they are safe, sure and unobjectionable. Yet the reports made thus far ought to lead a conservative man to regard declarations concerning their safety as the expression of a too great enthusiasm. Almost all who have employed antipyrin and thallin have reported the occasional production of a subnormal temperature bordering closely on collapse, while May has narrated one case of actual collapse as the result of antipyrin. Dr. Barrs, of Leeds, has published one instance in which death occurred after, and probably in consequence of the administration of 35 grains of this remedy, followed in three hours by half that dose. Such facts as these should make one cautious, particularly in cases of adynamia. Vomiting and an exanthematous rash sometimes result, but seem not to be of grave import nor specially annoying. If, however, thallin and kairin exert the destructive influence upon the blood that is asserted by Brouardel and Loye, their employment should be prohibited. Moreover, the depressant effect of kairin is so great that, at the fourth German Congress of Internal Medicine, held at Wiesbaden last April, a strong feeling against its use was expressed.

The remedies under consideration have been employed in children as well as adults, and in a great number of diseases attended by high temperature. Antipyrin has yielded specially happy results in phthisis and typhoid fever. It is preferred to quinine as more efficient, and free from the cerebral disturb-

ances which characterize the quinia salts. Indeed, along with the reduction of the temperature in typhoid fever, there is produced a notable improvement in head symptoms. On the whole, antipyrin and thallin are endorsed by high authorities, although, owing to their somewhat delayed action as compared with that of the cold water bath, it is generally thought best to resort to the bath in cases of alarming hyperpyrexia. Indeed, the Vienna school appears to prefer cold water to mere medicinal antipyretics, and argues that the benefit of the bath is not limited to the mere reduction of the bodily heat. Its action upon the skin, nervous system and kidneys must be taken into account, and in this lies a great part of its superiority over antipyrin or other medicinal febrifuges. In this country the cold bath has not met a very cordial reception from either physicians or patients. This is due largely to the discomfort and trouble involved.

In the columns of THE JOURNAL of Sept. 26, 1885, under the head of "Medical Progress," is a plan suggested by Dr. H. C. Wood in the *Therapeutic Gazette* for July last, according to which a cold bath may be given quite easily. He also expresses a preference for cold water as a febrifuge, over internal agents which are manifestly depressant, and we think the opinion of such an authority should carry weight. He also mentions the declaration of Stephan, of St. Petersburg, that the heat of the body can be reduced by the application of cold wet sponges to the neck over the superficial veins. Those wishing a more explicit account of antipyrin, will find in the columns of THE JOURNAL of Dec. 5, 1885, a contribution, by Dr. S. S. Adams, of Washington, upon its history and physiological effects. In the same number, under "Medical Progress," Jaccoud's experiments with thallin are narrated, with a limited review of the action of this drug, antipyrin, and others of the series.

SOCIETY PROCEEDINGS.

AMERICAN PUBLIC HEALTH ASSOCIATION.

Thirteenth Annual Meeting, held at Washington, D. C., December 8, 9 and 10, 1885.

(Specially reported for THE JOURNAL.)

TUESDAY, DECEMBER 8—FIRST DAY.

The Thirteenth Annual Session of the American Public Health Association convened in Willard's Hotel, Washington, at 10 A. M., under the Presidency of JAMES E. REEVES, M.D., of Wheeling, W. Va. Ninety-five members were present.

The President introduced Dr. Smith Townsend, Chairman of the Local Committee of Arrangements, who announced the plans formed by the members of the Committee for the entertainment of the members.

DR. IRVING A. WATSON, of Concord, N. H., Secretary of the Association, then read a communication from the Montreal Board of Health, regretting its inability to send a delegate.

DR. A. L. GIHON, U. S. Navy, stated that it was necessary that a permanent

COMMITTEE ON INCORPORATION

should be established.

Forty gentlemen were then elected members of the Association, and the names of twenty-four proposed for active membership.

DR. J. IRVING WATSON, the necrologist, read the list of members deceased since the last meeting.

DR. J. BERRIEN LINDSLEY, of Nashville, submitted

THE TREASURER'S REPORT,

showing a cash balance on hand of $1,105.03.

The Constitution was then so amended as to make the Incorporation Committee a standing committee.

DR. EZRA M. HUNT, of Trenton, N. J., read a paper on

SANITARY NOMENCLATURE.

It carefully reviewed the various terms now used in sanitary, statistical and parasitical nomenclature. Such terms as hygiene, contagion, infection, miasm, malaria, etc., were subjected to careful review, and their proper use designated. The adaptations of the English nomenclature to new diseases were reviewed. In the parasitic nomenclature of disease the terms micro-organisms, microderms, microbia, microzia, microphytes, microzyms, were discussed. The classification of Cheyne was preferred. The paper is important, as furnishing the basis of a careful and definite use of terms in the discussion of communicable diseases.

DR. GEORGE H. ROHÉ, of Baltimore, from the Committee on Disinfectants, then presented the report of this Committee, which consisted of an elaborate monograph.

DR. JOHN S. BILLINGS, U. S. ARMY, read a paper on

METHODS OF TABULATING PUBLIC RECORDS OF DEATH.

After referring to the fact that it is desirable that vital statistics should be published upon some uniform plan, which is at present not the case, he proceeded to define the wants of statisticians and sanitarians which are to be supplied by such tables, and for the sake of simplicity, considered first, the needs of the health officer of a city. He desires information of the first appearance of any of those diseases which are liable to become epidemic; of the usual prevalence of any form of disease; of the localities of such prevalence; of the effects produced on health by certain occupations, manufacturing establishments, tenement houses, things which are complained of as nuisances; or by measures taken to effect improvement, such as the introduction of a general water supply, the construction of drains and sewers, etc. In order that he may, from the statis-

tical records, determine where sanitary work is most needed, and whether the steps which have been taken to effect improvement have really been useful or not, he must have the information for individual localities, and sometimes for quite limited ones, as well as for the whole city. This information, to be practically useful, must as a rule, be in the form of percentages or ratios, in order to permit of comparisons. These ratios should be stated in terms of the living population, furnishing the sickness of deaths under consideration wherever it is possible to give this. Hence, it is highly important to know the population of each of the units of area adopted.

As a matter of fact, no health officer expects to be able to ascertain the number of cases of sickness in any locality; the best he can hope to do is to ascertain the general character of the prevailing disease, the number and location of cases of a few of the specially contagious forms of disease, and the number of deaths from each cause. If he can obtain these promptly and accurately, he will be unusually fortunate, and from these data he can draw valuable inferences as to the amount and character of preventable disease existing in the community at a given time, and also as to the connection between certain forms of disease and death, and the circumstances of the environment, in order to know what diseases are preventable and how this prevention is to be effected.

For the first of these purposes, he needs the results as promptly as possible—weekly bulletins are the usual forms in which they are given to the public. For the second purpose, careful study of the facts in all their relations is necessary, and also the accumulation of a large number of facts; this requires time, and such studies usually appear in annual reports. We have therefore to consider the best means for weekly reports which are essentially reports of warning, provisional and incomplete, and for annual reports which are intended to record the facts as completely as possible, and in the form most convenient for study; which, in other words, are to furnish the materials for vital statistics properly so-called. As the purposes of these two forms of reports are different, it is not wise to endeavor to combine them; that is, to make the weekly form so complete and elaborate that the annual report shall be little more than a summary of the weekly forms.

The forms used in annual reports were then discussed and a table was given, showing for different States and cities the classification of data in regard to deaths given in their annual reports, showing great diversity in the forms used, and that also in many of the reports important information is wanting. The important question to be answered by the statistician from the data of deaths and living population in each sanitary unit of an area, such as a ward, county, etc., is, how many persons of each sex, of each age, of each color, died from certain causes, and what is the proportion of such deaths to the number of living population of corresponding sex, age, and color in the same unit of area? It is by no means sufficient to give the total number of deaths of each sex, then of each color, then of each age, etc.; even the binary combinations of these as shown in the table, are insufficient to furnish the information which is required to determine the nature of the influences which injuriously affect the health in a given locality. Let us suppose, for example, that we are told that in the city of Washington the number of deaths from diarrhœal diseases during the year was much greater in ward 1 than it was in ward 2. The question is as to the cause of this difference. This cause might be, first, some difference in the water supply of the wards, as for example, one might get its supply mainly from springs or wells, and the other from the general supply; or it might be due to defective sewerage in one of the wards; or to a greater amount of surface uncleanliness; or on the other hand, it may be due to differences in the character of the population of the wards; the one being inhabited largely by negroes, and the other by whites; or the one have a relatively large number of infants as compared with the other; or it may be due to poverty, producing overcrowding, and improper food supply. Now to determine which of these causes has been more especially acting, and in what direction remedial measures are to be applied, we wish to know how many children of each color, black and white, there were living in each ward during the year, and how many children of each color of each year of age under five years of age died from diarrhœal diseases during the year. From these data we can soon obtain answers which will narrow the field of inquiry as to the special causes of the prevalence of this form of disease in one of the wards, very greatly, even if we can not completely answer the question.

A most important factor in mortality statistics is age. Each age is specially liable to certain diseases and injuries, and upon the proportion of persons of certain age-groups living, will depend to a considerable extent the general mortality rate, and to a still greater extent the mortality rates from special causes. But to obtain from the age data of the dead, the full information which they can yield, it is essential to have the corresponding age data for the living population. At present we can only get this with any degree of accuracy by means of an United States or a State census, that is for most places only once in ten years. The so-called "police censuses" which are taken from time to time in cities are, as usually managed, of little value in determining the number of living population, and give no information as to the age distribution except as to the number of adult males. It would not be difficult, however, to obtain from a police census extremely valuable information, not only as to the total number of living population, but as to the number of infants under one year and of children under five years of age, with distinction of color and sex, and to do this with but little more expense and trouble than that required for the present imperfect methods, and this is a matter in which a health officer who is on good terms with the police authorities may effect a great improvement. The practical objection to the preparation and publication of tables of vital statistics in the complete forms which I have indicated, is simply that they are expensive, requiring much more time and labor to prepare them, and much more expense for their publi-

cation, than do the collection and publication of the simple elementary data of which these compound tables are made up. In a city having twenty wards, the deaths in each ward during the year for each sex, and of each of twenty groups of ages, can be given on a page; if it is to be given for each group of age age for each sex, it will require at least twice this amount of space; and if a total is to be given, as well as that for each sex, it requires three pages. If we add the distinction of, say fifty causes of death, these for the twenty wards would give an addition of two pages. But if the number of deaths at each age, of each sex from each cause in each ward is to be shown, it will require three times fifty, or 150 pages to present this data distinctly.

With reference to methods of compilation, rapidity and accuracy can best be secured by the use of small cards, each one of which is devoted to data relating to an individual. Such cards can be readily distributed into any subdivisions which may be desired and then counted.

The weekly report is not published for the information of the health officer. It is for the information of the people, as a means of education, and for the creation and maintenance of an intelligent public opinion, of which sanitary officials have so much need, and in the absence of which their warnings and recommendations are too apt to be entirely unheeded. It also serves to fulfil a duty which the health officer owes to the sanitary authorities of other localities, viz.: the giving them timely warning of any outbreak which threatens the public health. Considered as an educational document, it is very important that the lesson which it is intended to teach should be clearly set forth, and this not to be done by merely giving columns of figures. The significance of these figures should be clearly stated in words, and upon the manner in which this is done will greatly depend the usefulness of the publication. The best means of diffusing this information is through the daily and weekly secular press, which is always glad to obtain and publish it, if furnished regularly, promptly and in proper form. A good rule is to furnish it to the press every Saturday afternoon, closing the record at noon that day.

The chief points of interest for this report are the total number of deaths from all causes, with distinctions of sex, color, age and locality, the number of deaths from certain specified causes, if there is a system of registration of contagious diseases, the number of cases of each of these forms of disease, with distinction of color, sex, age and locality, the number of births, with distinction of color, sex, age and locality, and certain ratios to permit of drawing comparisons. It is not desirable in these weekly reports to attempt to give the number of deaths from each individual cause, or from a large number of causes, and such an attempt is one of the most usual mistakes made in this work. The following are the causes of death which should be specified, and as a rule no others should be referred to in the report: Asiatic cholera, yellow fever, small-pox, typhus fever, enteric fever, scarlatina, diphtheria, croup, measles, whooping-cough, malarial fevers, erysipelas, puerperal diseases, diarrhœal diseases (including diarrhœa, dysentery, cholera morbus and cholera infantum), cancer and tumors, phthisis pulmonalis, other forms of tubercular disease (including tubercular meningitis or acute hydrocephalus, scrofula and tabes mesenterica), pneumonia, other acute lung diseases, old age, childbirth, stillbirths, accidents, homicides, and suicides.

The units of area for which these are to be reported should, as a rule, be the wards of the city, but to this rule there should be some exception. In the first place, it sometimes happens that the ward lines are fixed for purely political purposes, enclosing extremely irregular areas, having no relation to topography. This, for instance, is the case of the present wards in the city of Baltimore. In such a case the ward divisions are absolutely useless for the purpose of the sanitarian and statistician, and should be abandoned; the health officer making his own divisions in accordance with the topography and the character of the population. In such a case he should endeavor, when a census is taken, whether this be done by the city, State, or United States authorities, to have the results of such census furnished him in a form corresponding with the divisions which he has adopted.

It is often desirable for special purposes in certain localities, and for a short time, to make use of smaller units of area than the ward, that is, to give the number of cases of, and deaths from, certain diseases in a certain square or block, or in the vicinity of certain slaughter-houses, hospitals or other establishments which may be suspected of exerting deleterious influence on the public health, and in some cases the publication for a few weeks of the death record of a particular tenement house or foundling asylum, will interest the public and have a good effect.

Some of the weekly forms of reports actually employed by different cities were then shown and commented on. The summary of the weekly writings issued by the Registrar-General of England was pointed out as a model for such writing. The weekly bulletin of the City of Brussels, issued by Dr. Jansens, was also pointed out as a model. It was advised that the weekly report, as a rule, should be published by giving it to the daily press, and that the separate bulletin had better be in a monthly, rather than a weekly form. Statistical reports of disease, or mortality statistics, can, as a rule, only be obtained for a few of the contagious or spreading diseases, with regard to which compulsary notification is enforced. The exception to this rule occurs in the army and navy and in the police force of some cities, where all cases of excuse from duty are recorded, with the cause of the exemption. The reports of prevailing diseases published by the Michigan State Board of Health, are statistics of the opinions of physicians as to the relative prevalence of certain forms of disease, and not of the actual number of cases. Where there exists in a city a system of compulsary notification of cases of contagious and infectious diseases, the number of cases of each kind of disease should be reported weekly with distinction of sex, color and ward, and of age. There are sometimes great difficulties in the way of doing this owing

to the pressure which commercial interests exert upon the health authorities or Registrar; and on the public press, to prevent the publication of what seems likely to injure the business interests of the city. Unless one has had some personal experience of the intensity and magnitude of this sort of pressure, he can not estimate the difficulty of resisting it. Nevertheless, the attempt to conceal the extent of prevalence of an epidemic in a city is always a short sighted policy, because it always gives rise to exaggerated rumors as to the amount of disease present, and thus really tends to increase rather than to allay panic in neighboring communities. Moreover, when it is discovered that a health officer has attempted to conceal this kind of information in one instance, he becomes an object of suspicion to other sanitary authorities, and his statements though truthful, are not believed. I think his wisest course in all cases, is to furnish the press with full, accurate, reports of prevailing sickness and deaths so far as he has the data to do so, and thus avoid the responsibility of concealment.

There are several sources of information with regard to the amount and character of disease prevailing in a city of which the health officer can with a little tact and management avail himself, and which it seems to me are too much neglected. There are the public dispensaries and other institutions for the treatment of the sick, including the city physicians to the poor, the prisions, reformatories and asylums, and the public schools. From all these, certainly from all of them which are supported from the public funds, he should be able to obtain reports showing the amount and character of the diseases coming under their notice.

In conclusion attention was called to the importance of the use of graphic representations of the results of studies of vital statistics to be given in the forms of diagrams and shaded maps. While such illustrations are somewhat costly and in one sense add nothing to the information derived from the tables from which they are compiled, they are an extremely important means for the diffiusion of this knowledge, for educating the people as to the value and uses of vital statistics—and such education is now of prime importance to all who are interested in sanitary matters—it is in fact, a necessity if we are to make substantial progress in preventive medicine.

Dr. Henry B. Baker, of Lansing, Mich., read a paper entitled

NOTES ON THE RELATIONS OF RAINFALL AND WATER-SUPPLY TO CHOLERA.

He distributed copies of a table exhibiting the monthly mortality from cholera in Calcutta during the past twenty years; also diagrams showing the relations of rainfall to cholera. One diagram included records of the monthly rainfall in Calcutta for forty-eight years, and statistics of over 600,000 deaths from cholera in the endemic area about Calcutta. A striking relation of rainfall to cholera was shown to exist at almost every reason of the year, and he offered in explanation a probable reason for the apparent want of relation at the exceptional time, which is about the coldest season, being briefly, that not so much water is drank at that season, and therefore there is less opportunity to contract cholera by the use of bad water, and especially as at such times some of the tanks and other objectionable sources of water are entirely dry.

Dr. D. E. Salmon, Chief of the Bureau of Animal Industry, read an interesting paper on

THE VIRUS OF HOG CHOLERA.

He briefly referred to the wide dissemination of this disease, to its fatality, and the heavy losses annually occasioned by it in almost every locality in each of the States and Territories, and while it has never been shown that the malady may be transmitted to man, there are many reasons why it is deserving of profound study, by all who are interested in questions concerning the public health. The number of hogs which die of this disease in this country annually reaches into the millions, and some disposition must be made of the carcases. That disposition *may* be a matter directly bearing upon the health of our people. Often these carcases are left to putrefy in the open air, or to be preyed upon by carniverous animals and birds; sometimes they are thrown into the ponds and streams which furnish drinking water to our cities; sometimes the lard is rendered from them, and what finally becomes of this product is an interesting subject for speculation. Occasionally they are burned or buried, but only occasionally. When this plague breaks out in a herd, the owners of swine in the vicinity often commence to ship their animals at once to escape its ravages, As a result, the disease is found in the great central stock-yards from which thousands of animals are taken every day and killed for packing. Some of these have undoubtedly been infected and are passing through the incubative stage of the plague; in others the disease may be developing, and with the most careful inspection would pass unnoticed. What would be the effect of the meat from such animals upon human health? Perhaps none of us can answer this question satisfactorily. The flesh of diseased hogs may be practically harmless, or it may be the cause of some of the obscure maladies which the physician daily meets in practice. To solve these problems definitely, it seems evident that one line of investigation must deal with the virus itself, its nature, its effects upon other species of animals, the period during which it retains its virulence after the death of its host, the durable chemical substances which it may form, and last, though not least, the septic complications which may accompany it.

The study of this virus is also of peculiar interest to us, because of its bearing upon the general subject of contagion. The science which treats of this important class of phenomena is still in its infancy. A decade has scarce passed since Koch laid a substantial foundation for the germ theory of disease in his studies of the *bacillus anthracis*, the germ of malignant anthrax or charbon. But charbon is not a virulently infectious malady. The virus seems to multiply in certain soils, and is taken into the system with the food. This disease is rather an endemic than an epidemic or epizootic. Of the great epidem-

ics, but few if any of the germs from which they arise have been satisfactorily determined. Fowl cholera is an example of an animal plague which is in no apparent degree limited by conditions of climate and soil. While epizootic, it seemed, after a long series of experiments, that the virus was not disseminated through the air, but that it was necessary for it to be ingested into the food or inoculated into the tissues to produce the malady. While this affection is caused by a micro-organism, we still lack an example of a virulently infectious disease caused by a bacterial organism, the contagion of which is disseminated through the atmosphere and when inspired with the air infects the animal. That hog-cholera is thus disseminated appears to be accepted by all who have studied it.

The isolation of the micro-organism which produces the disease, and the demonstration of its pathogenic action, has been a most difficult task. For seven years this study has been constantly going on in Europe and America; the most competent investigators in this line of work have devoted their attention to it; every method that the latest developments of science have suggested has been applied to the problem, and yet, when the impartial reader approaches the subject and attempts to reach a conclusion from the literature attainable, his first decision will undoubtedly be that bacteriology is anything but an exact science.

The virus has been described under many different forms, and the speaker had not found, in connection with any other subject, so much of apparently scientific and convincing evidence which leads to so many different conclusions.

Dr. Klein described a micrococcus in 1876 without attributing pathogenic properties to it. In 1878 he stated that the cause of the disease was a bacillus which grows in long leptothrix filaments and forms spores. His inoculation experiments in most cases failed to produce severe disease with cultivated bacilli. Recently he described a different bacillus, which does not exceed five micro-millimetres in length, as the cause of the malady. This germ kills pigs, mice, and rabbits, but does not affect pigeons.

In 1880 and succeeding years the speaker found a micrococcus in a number of outbreaks. This germ was cultivated, and when used for inoculation produced disease. The effects were variable and the virulence was soon lost by cultivation. Further investigation showed that, in the advanced stages of the malady, it was complicated with septic infection and several different organisms could be found in the tissues. This made it necessary to discriminate between septic germs and the essential virus.

By studying each species of germs separately a very virulent bacterium has recently been discovered, which produces a disease in pigs having all the characters of swine plague, and kills mice, rabbits and pigeons. This bacterium is easily found in very acute cases, but in chronic cases the septic infection becomes more prominent and masks it. It remains to be determined if the outbreaks in other parts of the country are caused by this organism.

In 1883, Pasteur stated that the cause of *rouget*, believed to be identical with hog cholera, was a dumb bell shaped microbion, which killed pigeons and rabbits, and which might be attenuated and used as a vaccine to prevent this malady.

Scientific men have been surprised to find that the active principle in the *rouget* vaccine now sent out by Pasteur is a fine bacillus, and an entirely different germ from that described in 1883.

Dr. Loeffler has studied the *Rothlauf* of Germany, believed to be the same disease as *rouget*, and finds it caused by a fine bacillus apparently identical with that in Pasteur's vaccine. The period of incubation of *Rothlauf* is much less than that of hog cholera, and there is an absence of that ulceration of the intestines which is the most characteristic lesion of the American disease.

Pasteur's vaccine had been tried. Its effects were not uniform or reliable. Of four pigs vaccinated with first vaccine, one died; the others showed no effects. The three remaining animals were treated with second vaccine, and a fourth was placed with them, which received a very large dose, about a drachm, of this. None of these were affected. They were then exposed to hog cholera and three of the four contracted the plague and died.

It is not considered possible that the fine bacillus described in France and Germany is the cause of our hog cholera, as it has never been found in the spontaneous cases here. It was, however, easily demonstrated in the body of the animal that died of Pasteur's vaccine. It was concluded, therefore, that this vaccine could not prevent the American swine fever, but might be the means of introducing a different disease that would increase instead of diminishing our losses.

(To be concluded.)

CHICAGO MEDICAL SOCIETY.

Stated Meeting, November 16th, 1885.

THE PRESIDENT, C. T. PARKES, M.D., IN THE CHAIR.

DR. J. M. G. CARTER, of Waukegan, read a

REPORT EMBODYING TWO HUNDRED CASES OF TONSILITIS.

After detailing the treatments which had been employed in the cases, the author advanced the theory that since the great majority of the cases occurred during March, April and May, when northeast winds prevailed, carrying landward more moisture from Lake Michigan, these winds must be one of the casual factors in the production of tonsilitis. Also, the test for ozone during these months showed a greater percentage of ozone in the atmosphere. Another fact was noticed, that a great many cases occurred in rheumatic patients. The author was of the opinion the epidemic of cares detailed was due to the damp northeast winds, containing an excess of ozone, and to unusually disturbed electrical conditions of the atmosphere. The author grouped the two hundred cases, without classifying them, into cases of simple, diphtheritic or scarlatinous tonsilitis. He mentioned, however, the fact that simple tonsilitis

were often accompanied or followed by attacks of diphtheria or scarlet fever among other members of the family.

Dr. F. O. Stockton said that we have tonsilitis in nearly all the eruptive fevers, usually following, and occasionally preceding them. The author refers to cases having diphtheritic patches on the tonsils; I think he has confounded these diphtheritic cases with what specialists call follicular tonsilitis. It is not a diphtheritic condition at all, but resembles it very greatly, so that in a differential diagnosis these cases are very often confounded. In regard to the temperature going up to 104, it is my experience, and that of authorities such as Cohen, Bosworth and Robinson, that it ranges from 102 to 103, seldom more than 103, usually 102. In the treatment of tonsilitis I have never found a gargle effective. In diphtheria or acute tonsilitis we may give chloride of potash, or any other drug, but when a man has a pain in the angle of his jaw and a throat so sore he cannot swallow, he cannot gargle. Ice held in the mouth until it dissolves is good; also powder or tincture of guaiac and tincture of aconite internally; but more than three doses of aconite should not be given in one day. Occasionally, a case is going on to suppuration; use hot applications externally and internally in the way of steam, otherwise never use hot applications. My idea is that heat promotes congestion more than cold, and my experience is that where cases are treated, some with cold and others with hot applications, that the cold in connection with other treatment, guaiac and tincture of aconite, is most successful. We ought to settle this question of tonsilitis. What is acute tonsilitis, and is there such a thing as acute tonsilitis? To me it is a misnomer. The abscess seldom forms in the tonsil, it is behind it in the loose connective tissue; and in opening it we cut behind or above the tonsil.

Dr. C. W. Earle asked Dr. Carter if there was any appearance of contagion in any of the cases?

Dr. Carter said that frequently the disease will attack everybody in the family, old and young, and just as frequently but one or two in the family have the disease. It sometimes appears to be contagious.

Dr. G. C. Paoli said that tonsilitis is a very common disease in Chicago, especially among children. It is certain that there are different degrees of tonsilitis; there are light cases in which very little medicine is required, and again there are strumous children who are very susceptible to the changes of weather, and in inclement weather get wet and have tonsilitis. In some cases one tonsil is affected, in others both, or the pharynx. There are grave cases that cannot be cured in one week, or two, cases that develop into hypertrophy of the tonsils. In regard to treatment, a light case does not require ice, and a person with malignant scarlatina with tonsils affected would take cold from the application of ice. We should discriminate, and in malignant cases when the tonsils are inflamed should be careful about applying ice. In the use of aconite with children we should be very careful, as in fever it diminishes the circulation, and I would not recommend its general use unless you can see the patient two or three times a day and watch the effect of the aconite. A simple thing to use is a little potash with tincture of iodine. In scarlatina complicated with diphtheria it is better to use very little medicine. I have nothing against chlorate of potash, but I have read a very interesting paper by a professor in New York, whose name I do not now remember, who says that observation has shown that chlorate of potash has often produced nephritis; and I think great care should be taken in its use.

Dr. R. Tilley said that one of the points brought forward by the author is the use of kerosene. Besnier, a professor of skin diseases in Paris, says that kerosene is used extensively by the laity, but he regards it as a dangerous remedy in the hands of people generally, and a very inefficient one; he was speaking, it is true, of treatment of itch. He protested against the use of the terms ozone and electrical conditions of the atmosphere; we know practically nothing about either.

Dr. W. E. Quine said that an interesting feature of the experience embodied in the paper is the obvious failure of the writer to differentiate infectious from non-infectious tonsilitis. I presume it is a matter of familiar observation to all who have been long engaged in the practice of medicine that many cases of follicular tonsilitis occur which baffle the judgment of the most experienced physician to determine with precision whether they are infectious or non-infectious. I have often seen in my own practice cases of this kind. Often one member of a family, probably the first one attacked, exhibits plainly marked features of simple follicular tonsilitis, and those of the family who sicken afterwards exhibit the phenomena of diphtheria, or less frequently, scarlatina. The text-books do not give a reliable guide to diagnosis, and if any of my colleagues know of means by which cases of this kind can be differentiated with certainty we would like to know them. Jacobi in a recent article maintains very vigorously that many cases of so-called tonsilitis are in reality immature cases of diphtheria, and he stoutly maintains that there are many cases of diphtheria never having patches in the throat, and the patient walks on the street and communicates the disease freely to those with whom he comes in contact.

Dr. Sarah Hackett Stevenson said that in February, 1885, she was called to see a lady who had frequently suffered from tonsilitis. She was "subject to quinsy." I suggested that her child should not be kept in the same room with her, as the case seemed more than ordinary violent, and gave the usual treatment for quinsy; the disease went on to suppuration. I was called out of the city after one of the tonsils had discharged, and during my absence, about five days, her child was attacked with malignant scarlet fever, and died before my return. This is the first case in which I ever suspected that a benign form of tonsilitis might reproduce a malignant form. Since then I have watched all cases, however simple they may seem.

Dr. C. T. Fenn said that he thought to regard these cases all as malignant is to be on the safe side. A case of simple tonsilitis has a tendency to develop into diphtheria. He protested against the folly of attempting to distinguish between mild and simple

cases of tonsilitis and diphtheria. In regard to treatment, he has no use for gargles or washes; he will not force open the mouth of a child and cause it to cry, but steadily and persistently, every fifteen minutes, he gives such medicines as the child will carry over the tonsils when swallowing.

DR. J. S. KNOX regreted that the paper was so general, the author evidently grouping together a variety of cases of tonsilitis of different classes. There is undoubtedly an inflammation of the tonsils due to eruptive diseases, such as small-pox and scarlet fever, and there is a tonsilitis which is purely catarrhal, and another which is purely due to diathesis and which is rheumatic or syphilitic. The treatment differs accordingly. He thought there is an error as to the value of chlorate of potash; better results will be obtained from the use of bicarbonate of potash, the value of the drug lying in the fact that it is a potash salt, and I think that the bicarbonate of soda would be still much more efficient. Where the hyposulphite of soda would do good, the salicylate would do more.

DR. J. J. M. ANGEAR thought that if we remember that there is such a thing as resistance, the absence of which is susceptibility, it will explain some, if not all of these difficulties. We can readily imagine a robust, healthy child with strong resistance to morbid influences, and especially that of diphtheria, on exposure, would have simple tonsilitis (abortive diphtheria); but suppose that his brother, with strong susceptibility, is exposed to the same morbid influences, he will develop a case of undoubted diphtheria.

In diphtheria, we have an inflammation with fibrinous exudation which breaks down the mucous cells and forms the diphtheritic patch; this furnishes a nidus for the micro-organisms, which go on secreting or fermenting their peculiar virus, the absorption of which contaminates the whole body, and now we have a constitutional disease. Will not this explain a large number, if not all, of those cases where four or five children in a family are taken down apparently with simple tonsilitis, and some one child that has not their resistance is attacked with undoubted diphtheria. In this house we have tonsilitis, and our neighbor severe diphtheria. By remembering these pathological facts, we shall see that it is, or may be, all the same morbid influence here and yonder—here, recovery in a few days; there, death in a few hours.

DR. F. O. STOCKTON said that in acute tonsilitis he thought it will be found that ice is the proper treatment in the first stage, before suppuration has begun. It is very seldom that pus is located in the tonsil, it is behind the tonsil. With regard to a differential diagnosis between diphtheria and tonsilitis, there is almost always in diphtheria a regularly graded rise in the temperature; in acute tonsilitis, so-called, or follicular, the temperature is not regular, it rises at a jump, the attack comes on suddenly, begins with a chill immediately followed by fever; in diphtheria there is a gradual rise, going up one day, dropping the next. He thought if we took a record of given cases of diphtheria and tonsilitis, we should find that a regular rise in temperature in diphtheria occurs in the essential fevers.

Stated Meeting, December 7, 1885.

THE PRESIDENT, CHAS. T. PARKES, M.D., IN THE CHAIR.

DR. E. F. WELLS, of Minster, Ohio, read a paper on

PNEUMONIC ABSCESS.

(See p. 675.)

DR. CHRISTIAN FENGER said that an interesting point in the paper is that the author takes the ground of the clinical and, perhaps, conservative man. Dr. Wells claims that we should not operate on the small abscesses, but only on large ones, as the latter are the more dangerous. Dr. Fenger believed that we should operate on all of them when indicated. Buhl, in Christiania, has operated on nineteen cases in which there were cavities. Up to the present time, we have reports of about thirty cases in which operations have been performed, but only seven of these cases have been such as reported by Dr. Wells, or abscesses incident to pneumonia. Since there have been only seven cases of abscesses of the lungs, incident to pneumonia, it stands to reason that these cases were severe ones, and that the abscesses were large. Dr. Fenger did not believe there had been much operating on small abscesses as yet; however, he would advocate it in case these abscesses were accompanied by a fetid bronchitis. There is an abscess-cavity, which Rokitansky calls a chronic abscess, in which there is not connective tissue enough to allow the cavity to close. This cavity is a source of danger to the patient, as sometimes, for one reason or other, septic micrococci gain entrance, acute inflammation or gangrene follows, and the patient dies. In such a condition, we should try to obliterate the cavity. Operative treatment of these abscesses has been so infrequent that we cannot say that it possesses any advantage over medical treatment. The important point to be decided in the future is how to get an understanding of where the danger-line is; how long we can afford to wait and how much strength can we afford to let the patient lose before we operate? It is, perhaps, well to put in a word of warning against operating too early, as we are all aware that patients who recover without an operation do better than those on whom there have been operations. Dr. Fenger said that, in case a cavity gives rise to fetid breath, frequently a fetid bronchitis is developed, and subsequently an inter-lobalular pneumonia in the other lung, or in the upper part of the lung in which the abscess exists. Relative to Dr. Wells's remark that he never suppresses the cough, Dr. Fenger stated that it is a fact that the cough ceases almost instantly after the abscess is opened.

DR. R. TILLEY said that he could not see of what benefit inhalations of turpentine could be in such cases, as the abscesses are analogous to those which occur in the more external portions of the body, and we never expect to benefit them by using turpentine. He would expect better results from administering this medicine internally, as he had, recently, read that the German physicians are using turpentine very successfully, by giving it internally, in diphtheria.

DR. WELLS, in closing the discussion, said that he

wished to recall the attention of those present to the important point that these abscesses occur most frequently in the lower lobe of the lung, similarly to pneumonia. The principal object of his paper was to do what he can to counteract the tendency among the medical journals to advise early operation in pulmonary abscesses. He thought the statistics, so far, do not prove the operative treatment to be superior to the expectant and medicinal treatment, and he thought surgeons were too prone to take the cases into their own hands, and that they do not leave enough to the *vis medicatrix naturæ*.

MASSACHUSETTS MEDICAL SOCIETY—SUFFOLK DISTRICT.

SECTION FOR CLINICAL MEDICINE, PATHOLOGY AND HYGIENE.

ALBERT N. BLODGETT, SECRETARY.

Meeting of November 11, 1885.

FREDERICK I. KNIGHT, M.D., IN THE CHAIR.

(Concluded from page 668.)

DR. VINCENT Y. BOWDITCH read a paper on

A CASE OF PHTHISIS WITH BACILLI; COMPLETE ARREST OF THE DISEASE.

(See page 654, JOURNAL of December 12.)

DR. HENRY I. BOWDITCH, stated that practically he had for many years considered consumption to be a contagious disease under certain conditions. He always advises husband and wife to sleep in separate beds, and he much prefers them to occupy different rooms. There is no longer a reasonable doubt that the bacillary organisms found associated with tuberculosis have the power to produce that disease. The many and careful series of experiments so extensively performed and reported in Europe, are convincing upon this point. The main question now seems to be this: What influence does the presence of bacillary organisms exert upon our opinions in diagnosis and in prognosis? Where do we stand in relation to these bodies in the actual treatment of tuberculous diseases? When the bacillus was first discovered in connection with tuberculosis we were inclined to look upon its presence as a sign of the gravest significance. These first opinions are at present undergoing a modification as we observe cases in which the undeniable presence of the bacillus is not necessarily followed by a fatal course of the disease.

The case reported at this time, as well as others recently published, show that we need not feel entirely discouraged when bacilli are present, and conversely, we should not be so highly encouraged when they are absent. We do not yet know the absolute value or the entire relation of the bacillary organisms to the course or termination of diseased conditions, nor their full bearing and influence upon diagnosis or prognosis.

DR. KNIGHT said that he had seen a case in the early summer of 1884, in consultation with a practitioner of a neighboring city, in which the symptoms were quite acute, and in which the fears of rapid future progress were increased by finding numerous bacilli in the sputa. Contrary to expectation, however, the patient, who was a young lady, soon began to improve, and at last accounts had no cough, considered herself well, and had every appearance of being so.

Dr. Knight said that such cases in reality only confirmed what we know before, that is, that arrest may take place in pulmonary tuberculosis. Perhaps hitherto, in cases of arrest, we have been inclined to doubt the tuberculous nature of the disease. We can no longer feel this doubt.

DR CUSHING stated that the higher degree of infectiousness of tuberculosis among animals who were subjected to experiment was no doubt due in some measure to the fact that the healthy animals are frequently placed in pens which have been occupied by diseased animals; and that quite possibly the cages themselves may contain the germs of tuberculosis and thus render the animals confined therein more liable to tuberculosis. It is a very suggestive fact that in the experiments to determine the infectiousness of tubercle germs when suspended in vapor, the spray was conducted out of the building in which the laboratory was situated, to cages some feet away, and the windows and doors of the laboratory were kept carefully closed during the experiment. Every one of the animals thus exposed to the tuberculous spray became affected with general tuberculosis. This fact should be a sufficient indication for all possible care in averting contagion in the human tuberculosis. The disease is clearly to be classed not only as communicable, but as a highly infectious one, and should be treated as such.

STATE MEDICINE.

THE POWERS OF THE ILLINOIS STATE BOARD OF HEALTH.

Judge McAllister recently delivered the opinion in the case of Lucas R. Williams against the people and others. Williams was indicted in the criminal court for the alleged violation of the act regulating the practice of medicine in Illinois. He pleaded guilty, was tried, convicted, and sentenced to pay $50 fine. He appealed the case upon the claim that he graduated at Rush Medical College February 16, 1875, while the act was passed May 29, 1877, and that consequently the act did not apply to him. The Board of Health granted him a certificate after the passage of the act, but subsequently, in 1880, revoked it. The appellate court reverses the judgment of the court below and remands the case. It holds that the statute of 1877, being penal, must be construed strictly. The State Board of Health was not a judicial body, and its powers did not exceed those conferred in the act. Under it its only powers related to those physicians having diplomas and those having none. As to the former, its only duty was to verify the respective diplomas and identify the persons claiming them. As to non-graduates the Board had unlimited power. The right of the Board to re-

voke diplomas went only to those who had certificates after examination. Williams had a diploma, and the Board had no right to revoke his certificate. The legislature could not have intended to invest the Board with an absolute power over the reputations and fortunes of graduates of medicine, as no notice or right of appeal was provided for. It never intended that the Board should, by a fiat, say who should and who should not practice, and strip them of the value of years of study. The case was therefore remanded.

THE PENNSYLVANIA REGISTRATION LAW.

Section IV of the Pennsylvania registration law of 1881, requires that diplomas outside of the State must receive the endorsement of a recognized Medical Faculty within the State before registration; but before giving such, the Faculty must be satisfied as to the qualifications of the applicant, and as the endorsement of a diploma is an acknowledgement of the qualifications of its holder as well as of its genuineness, the Faculty of the Medico-Chirurgical College of Philadelphia desires to announce that it will endorse no diploma for registration until the holder thereof passes a satisfactory Medical examination. The fee for such examination is $30.

P. D. KEYSER, M.D., *Dean.*
W. F. WAUGH, M.D., *Secretary.*

DOMESTIC CORRESPONDENCE

LETTER FROM NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

The Late Dr. Elsberg—Fractures of the Upper Extremity—New Splint for Fractures of the Lower End of the Humerus—Action of the Academy in the Case of Dr. Purdy—The Willard Parker Hospital—General Shaler—Children Bitten by a Mad Dog—Cremation—Dangers of Large Cemeteries.

At a meeting of the Academy of Medicine held December 3, Dr. Morris H. Henry read a review of the life of the late Dr. Louis Elsberg and of the advancement of our knowledge of diseases of the throat during his professional career.

Dr. Samuel W. Smith read a paper entitled "Original Deductions based on the Study of One Hundred Cases of Fracture of the Upper Extremities, excluding the Hand." During the reading of the paper Dr. Smith exhibited a new apparatus for the treatment of fracture of the clavicle, in which the elbow, secured in a leather string, is drawn inwards and backwards by means of straps passing to a padded band which is placed in the axilla on the opposite side and fastened above the shoulder.

Dr. Smith also presented a new splint for fractures of the lower end of the humerus involving the joint, which he claimed was the only one that would ensure satisfactory results. A varied experience, full of disappointments, in the use of the known splints for the more severe fractures of the condyles, he said, had set him to work to make one with the following requisites: (1.) To hold the fragments firmly in apposition. (2.) To allow the forearm to be flexed and extended, pronated and supinated. (3) To lengthen or lessen the external angle of the arm with fixation. (4.) To leave the entire elbow joint exposed for the purpose of making local applications during the whole time of wearing the splint, without disturbing the latter. Such an apparatus he had accordingly devised, and it consists of two rods of untempered steel, with ball and socket joint, and fixation-screws at the elbow and wrist; the rods being secured to the arm and forearm by means of plaster-of-Paris bandages.

At this meeting Dr. Agnew presented a resolution, which was unanimously adopted, to the effect that, in the opinion of the Academy, any judicial action which tends to prevent the early reporting to the Board of Health, on the part of the medical profession, of cases of contagious disease, is contrary to public policy and detrimental to the public health. This had special reference to the recent case of Brown vs. Purdy, in which the Drs. Purdy were fined $500 because a patient of theirs was sent to the small-pox hospital by the sanitary authorities to whom they had reported the case; the plaintiff claiming that she did not have varioloid, as asserted by the physicians, and asking for $10,000 damages. Unless medical practitioners can have some guarantee that they are not liable to such prosecutions as this, the number of contagious diseases reported in this city is likely to be uncommonly small for some time to come.

At the same meeting a communication was read from the Health Department, announcing that the New Willard Parker Hospital, in East 16th St., is now open for the reception and treatment of cases of contagious disease, and inviting the President and Fellows of the Academy to visit it and inspect its accommodations. It is provided with a resident physician and a corps of trained nurses, and is designed for the treatment of patients suffering from such diseases as scarlet fever and diphtheria, who cannot receive proper care in their own homes.

General Alexander Shaler, the President of the Board of Health, has been charged with bribery as a member of a commission to select and purchase for the city three sites for armories for militia regiments, and required to furnish bail to the amount of $10,000. On account of his honorable record as a soldier and a citizen, and the high esteem in which he has always been held in the community, it is to be hoped that the General will be able to fully clear himself of these grave accusations against him. It is doubtful, however, whether the administration of the Health Department has been as efficient under his management as under that of his admirable predecessor, Prof. Charles F. Chandler. At the same time, the expenses of the department have been considerably greater than when Dr. Chandler was at its head. Thus, a short time since Col. Emmons Clark, the Secretary of the Board of Health, in explaining the routine management of the latter before the State Senate Investigating Committee, showed that soon after Gen. Shaler became President he put his military ideas into practice by dividing the working corps of

the Department into seven divisions, each under the direction of a chief at a salary of $3,000 a year, thus causing an increased annual expenditure of $21,000 for work which was formerly attended to by the Sanitary Superintendent, Dr. Day, who is still the Executive officer of the Board, and to whom all the chiefs of divisions are responsible. It was also shown that there was greatly increased expenditure for clinical service.

Six children in Newark, N. J., were bitten by a rabid dog while on their way to school on the 2d of December. On the following day Dr. O'Gorman, of that city, published a card advising the parents of the children to send them to Paris to be treated by Pasteur, and asking for a public subscription for the transportation of those whose parents cannot afford the expense. At the same time, he cabled to the great French savant, inquiring if he would take charge of the cases if they were sent to Paris. On December 4 Pasteur replied that he would do so, and accordingly four of them are to be sent, a sufficient amount of money having been subscribed to ensure the payment of their expenses. A consultation of physicians has been held at the office of Dr. Herold, President of the Newark Board of Health, in regard to the matter, and it is probable that Dr. Frank S. Billings, of New York, will accompany the children to France, and make a study of Pasteur's methods with a view to introducing his prophylactic treatment of hydrophobia into the United States. The parents of two of the bitten children refused to allow them to go.

The first human body was successfully incinerated at the new Mount Olivet Crematory at Fresh Pond, Long Island, December 4. It was that of an Austrian formerly living in this city, but who had of late resided in Hoboken, across the river. He died about a month previously, and had especially requested that his remains should be cremated. The whole crematory building is not as yet by any means completed, but the incinerating apparatus has been put in working order. The structure is of brick and marble, and the architecture is a modification of a Greek temple. About forty bodies are now awaiting cremation here. Mr. Erastus Winan has just purchased a farm on Staten Island, on which another crematory is soon to be erected.

One of the dangers from large cemeteries has just been illustrated at the village of Nyack, on the Hudson. For some time past there has been a growing feeling among the inhabitants that the water-courses running towards the village might become polluted by the increasing number of bodies buried in the Oak Hill Cemetery, near its northwestern portion, and recently the State Board of Health has been asked to make a full investigation of the matter. This has now been done, and the reports of Dr. Alfred L. Carroll, Secretary and Executive Officer of the Board, Horace Andrews, civil engineer, and William Halles, Jr., who made the analyses of the water in the vicinity of the cemetery, which have just been made public, clearly point out the danger from this source, and at the same time make such suggestions as will lead to the obviation of the difficulty as far as possible. In the course of his report Dr. Carroll says: "The dangers arising from decomposition of animal matter in burying grounds vary with the character of the soil; but under any circumstances the difference is rather one of degree than of kind. In porous soils such decomposition takes place most rapidly, complete decay of the body sometimes occurring in a very few years; but these soils permit the greatest diffusion of gaseous and dissolved products. In the case under consideration, with gravelly superficies underlaid by almost impervious strata, such wide diffusion of the rapidly produced liquefied results of putrefaction would be particularly favored. It has long been a matter of common experience that low fevers and various forms of 'filth diseases' are apt to prevail in the neighborhood of old burying grounds where population gathers around them." P. B. P.

BOOK REVIEWS.

FACE AND FOOT DEFORMITIES. By FREDERICK CHURCHILL, C. M., Surgeon to the Victoria Hospital for Children. With Illustrations of New Appliances for the cure of Birth-mark, Club-foot, etc. 8vo, pp. xvi, 195. Philadelphia: P. Blakiston, Son & Co., 1885. Chicago: W. T. Keener.

The reason for combining so diverse topics as are indicated in the title of this book will be found in the author's own words in the preface, as follows: "It may be asked why I should associate the face with the foot, as these are the two extreme parts of the body? Chiefly because deformities of these members of the body, being more manifest than deformities elsewhere, they constitute a greater hindrance to success in life. They not only deform, but deface, by reason of their great disfigurement, the artistic proportions of those parts of the body upon which the eye of the observer most loves to rest."

This short excerpt explains, so far as need be, the meaning of the alliterative title, "Face and Foot," and serves at the same time as a fair example of the writer's very defective and unpleasing literary style. But while his sentences are far less skilfully framed than those which lend a charm to the writings of Jonathan Hutchinson and others of our best medical writers, he nevertheless has much of value to tell in this book about nævus and club-foot, the two affections with which it is chiefly concerned. It is to be noted that the comparatively new and highly successful practice of treating nævi by the needle cautery and perforated metallic plates, is here for the first time adequately set forth. Very sensible directions are also given for the detail management of face eruptions, parasites, sebaceous cysts, dental abscesses, hare lip, salivary fistula, excess of hair, etc., as well as affections of the eye. The latter half of the volume (pp. 117 to 185), treats of injuries as well as deformities of the foot, of corns and chilblains, onychia, ulcers, and all the deformities to which ill-fitting boots give origin. The congenital and paralytic deformities are also fully considered. The large number of colored lithographs and wood-cuts which adorn the book add greatly to its value.

THE USE OF THE MICROSCOPE IN CLINICAL AND PATHOLOGICAL EXAMINATIONS. By CARL FRIEDLANDER, Privat-Docent in Pathological Anatomy at Berlin. Translated by Henry C. Coe, Pathologist Woman's Hospital, New York. New York: D. Appleton & Co., 1885. 8vo, 205 pages. Jansen, McClurg & Co., Chicago.

This is one of the best books of the kind. Its descriptions are short, detailed and accurate. It does not pretend to cover the field of pathology, but tells how to use the microscope and its various accessories, such as mounting materials and staining reagents, for clinical examination particularly.

The chapters upon microscopic accessories and reagents are good, for they give details which are of importance to students, and especially beginners, and are often omitted from other text-books. At the same time descriptions of complicated accessories which are often described in such works are omitted here, and with advantage, for they are usually useless to those who devote themselves wholly to clinical and ordinary pathological work.

A short chapter is devoted to the "Observation of Living Tissues," and one still shorter to an "Examination of the Solid Elements of the Body." "The Examination of Fluids" is treated of at length, and well. At first the methods of preparing fluids for examination were given; then in succession and in detail the subjects of blood, sputa, pus, urine, secretions of the genital tract, contents of stomach and intestines, and exudations.

It is devoted wholly to descriptions of the methods best adapted to use for making microscopical examinations for clinical purposes. By those interested in this subject, and especially by the beginner, will this little book be found valuable. The fact that a second edition of it was demanded in Germany in a comparatively short time, is evidence of its worth.

THE PHYSICIAN'S VISITING-LIST (Lindsay & Blakiston's) FOR 1886. Thirty-fifth year. Newly Revised. Philadelphia: P. Blakiston, Son & Co., 1885. Chicago: W. T. Keener.

This Visiting-List has stood the test of almost half a century, and its recent improvements should make it still more popular than it has been. The dose tables have been rewritten in accordance with the Sixth revision of the U. S. Pharmacopœia, and contain both the metric and old nomenclature. In addition to the Visiting-list proper there are pages for memoranda, for addresses, for bills and accounts, memoranda of wants, obstetric engagements, vaccition engagements, obstetric cases, record of deaths, and general memoranda. It is compact, convenient, simple and tasteful.

INTERNATIONAL CONGRESS.

THE COLUMBIA COUNTY MEDICAL SOCIETY ON THE CONGRESS QUESTION.

At the regular meeting of the Columbia County Medical Society, State of Pennsylvania, the following resolutions were unanimously passed:

WHEREAS, There being a division of sentiment in the medical profession relative to the action taken by the American Medical Association at its meeting in New Orleans, and also as regards the action of the Committee of Arrangements in carrying out its instructions relative to the proposed meeting of the International Medical Congress, to meet in Washington, D. C., in 1887,

Resolved, That we reaffirm our allegiance to the Code of Ethics of the American Medical Association, and we hereby give expression to our unqualified endorsement of its action in adding to the Original Committee.

Resolved, That this Society approves of the action of the Committee at its meeting in Chicago in deciding to appoint to official positions in said Congress only those who are responsible to the American Medical Association.

Resolved, That a copy of this action be forwarded to the Secretary-General of the Congress.

W. M. REBER,
Secretary Columbus County Medical Society.

MISCELLANEOUS.

DR. RABUTEAU, so well known during the past twenty years by his original work in physiology and experimental therapeutics, is dead.

HYGIENE AND BACTERIOLOGY.—The German Government has ordered that chairs of hygiene and bacteriology be established in all the Universities of the Empire.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM DECEMBER 5, 1885, TO DECEMBER 11, 1885.

First Lieut. H. P. Birmingham, Asst. Surgeon, ordered for duty at Camp Grant, Riverside Park, New York City.

First Lieut. Geo. E. Bushnell, Asst. Surgeon, ordered for duty as post surgeon, Ft. Preble, Me.

Capt. Wm. J. Wilson, Asst. Surgeon, ordered for duty as post surgeon, Plattsburg Barracks, N. Y.

Capt. D. M. Appel, Asst. Surgeon, ordered for duty at Jackson Barracks, La. (S. O. 256, Dept. East, Dec. 4, 1885.)

First Lieut. Edward Everts, Asst. Surgeon, ordered from Dept. Columbia to Dept. Arizona. (S. O. 279, A. G. O., Dec. 5, 1885.)

First Lieut. R. S. Polhemus, Asst. Surgeon, relieved from duty at Presidio of San Francisco, Cal., and ordered for duty as post surgeon at Ft. Halleck, Nev., relieving Acting Asst. Surgeon Loren N. Clark, U. S. A. S. O. 113, Dept. Cal. Nov. 30, 1885.)

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY, DURING THE WEEK ENDING DECEMBER 12, 1885.

George C. Lippincott, P. A. Surgeon, detached from Navy Yard, Washington, and wait orders.

C. W. Deane, P. A. Surgeon, ordered to the U. S. R. S. "Dale" as relief of P. A. Surgeon G. P. Lumsden.

G. P. Lumsden, P. A. Surgeon, ordered to Naval Hospital, Washington.

P. A. Lovering, Passed Asst. Surgeon, detached from U. S. R. S. "Wabash," and wait orders.